# A STUDY TO EVALUATE THE EFFECTIVENESS OF HOT WATER FOOT BATH ON LEVEL OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS IN A SELECTED HOSPITAL AT COIMBATORE


**COIMBATORE**

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF REQUIRMENT FOR THE DEGREE OF

**MASTER OF SCIENCE IN NURSING**

OCTOBER 2017

# A STUDY TO EVALUATE THE EFFECTIVENESS OF HOT WATER FOOT BATH ON LEVEL OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS IN A SELECTED HOSPITAL AT COIMBATORE

BY

**REKHA. R**

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULLFILLMENT OF REQUIREMENT FOR THE DEGREE OF

**MASTER OF SCIENCE IN NURSING**

OCTOBER 2017

CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

**MRS. REKHA. R,**

ANNAI MEENAKSHI COLLEGE OF NURSING,

COIMBATORE, TAMILNADU.

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR

THE DEGREE OF MASTER OF SCIENCE IN NURSING TO THE

TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI.

COLLEGE SEAL:

PROF. Mrs. M.MUMTAZ M.Sc (N)., MBA(HM), M.Phil.,
PRINCIPAL,
ANNAI MEENAKSHI COLLEGE OF NURSING,
COIMBATORE, TAMILNADU.

# DEDICATION

***

I dedicate my dissertation work to my family.

A special feeling of gratitude to my loving parents

***RAVINDRAN. P and CHEMBAKAM.V***

Whose words of encouragement and push for

Tenacity ring in my ears.

I also dedicate this dissertation to my loving husband

***VASUNADH.R*** and my great son

**RAJNADH.V**

And my friends who have supported me throughout the process.

# ACKNOWLEDGEMENT

*"Knowledge is the end based on acknowledgement"*

*Ludwig Wittgenstein- 1889*

I wish to acknowledge my heartfelt gratitude to the Lord Almighty for all the wisdom, knowledge, guidance, strength, protection, shield and support. He has offered me throughout this endeavor and given me courage to overcome the difficulties and thus complete this study successfully.

I honestly express my sincere gratitude to all the study participants who extended their co-operation throughout my study period.

I express my sincere thanks to Mr. A. KARUPPAIAH , D.pharm , **correspondent** of our college, for giving me an opportunity to study in this esteemed institution.

" Things do not turn up in this world until somebody turns them up ". I express my sincere respectful and wholehearted gratitude to **our principal** Prof. Mrs. M. MUMTAZ Msc (N), MBA, M.Phil., for her constant support, encouragement and guidance in all my endeavors. It is my great honor and privilege to have completed this study under her guidance. Words are insufficient to offer thanks for her incomparable love.

An excellent teacher is a complex matrix of builder, artist, leader and harvester. I would like to express my immense gratitude and whole hearted thanks to Prof. Mrs. S. BALAMANI, Msc (N) **Vice Principal cum Class Co-ordinator**, for her insisting support, constructive

suggestions and immense encouragement which enabled me to reach my objective. I consider it as a great honour and privilege to have completed my study under her supervision.

I proudly express my sincere thanks to **Research Guide** Dr. S. SELVAKUMARI MA, Mphil, PHD for her patience and time in checking and rechecking the manuscripts and for sharing his suggestions and constructive criticisms, which meant so much for the completion of the study.

I wish to thank my **Medical Guide** Prof. Dr. VEERAKESARI MD., Consultant Physician, Sree Meenakshi Hospital Coimbatore, for his kind consent to the most difficult task of my performance and his expert guidance, valuable suggestions, and constructive criticisms, which meant so much for the study.

I fail on my duty if I forget to be faithful to my teachers Mrs. K . KOGHILA M.Sc(N), Mrs.S.P.BABEE M.Sc(N), Mrs.M.SARANYA M.Sc(N), Mrs.K.MULLAIKODI M.Sc(N), Mrs.M.NITHYA M.Sc(N), Ms.B.UDHAYAJAYANTHI M.Sc(N), Mr. P.V. RUBIN ANTONY M.Sc(N), Ms.G.MARUTHU MSc(N), Mrs.F.SUGANTHAKUMARI M.Sc(N), Mr. D.TITUS FERNANDEZ M.Sc(N) and Ms. M. ASWINI M.Sc(N), for their genuine help, motivation and healthy suggestions for the beginning till the end of the study in all aspects. An endless thanks from my inner heart for them.

I am highly obliged to the dynamic and eminent personality, Padmasree Dr. G. BAKTHAVALSALAM MD, MS, Chairman of KG Hospital Coimbatore, for having allowed me to conduct the study and also for the facilities provided.

My grateful thanks to Dr. ILAGOVAN VEERAPPAN MD,DM, Chief Nephrologist, KG Hospital Coimbatore, for his excellent guidance and support.

I wish to thank Dr. VIKAS MD, Dialysis Unit In charge, Kg Hospital Coimbatore for his valuable support and guidance. I extend my sincere thanks to all STAFFS who offered timely support and guidance in conducting this study.

I extend my heartfelt gratitude to Mr. PRABUKUMAR .R, CEO- HR & Quality KG Hospital Coimbatore, for having allowed me to conduct the study and also for the facilities provided.

My sincere thanks to Mr.ANNASAMY M.Phil, for extending their helping hands in the course of analysis of the data collected and interpretation.

My special thanks to all the experts those who validated the study content and research tool.

I offer my gratitude to our librarian Mrs. SULOCHANA, M.L.ISc for helping me in collecting reviews for the study.

I express my gratitude to Mr. VENKATESH, B.Sc, GREEN PARK INTERNET CAFÉ, Sundarapuram for computing the manuscript clearly, legibly and effectively with in short time as we requested.

My heartfelt thanks to all teaching and non-teaching staffs of Annai Meenakshi College of Nursing for their constant help and encouragement throughout my study.

I take this golden opportunity to thank my beloved parents, husband and my son who have been the foundation for my success in my educational enduration.

# ABSTRACT


## INTRODUCTION

Fatigue is one of the most frequent complaints of patients undergoing hemodialysis and is associated with impaired health related quality of life. Ignoring this fatigue can contribute to worsening overall health of patients and slowed recovery process.

## Statement Of The Problem

A Study to Evaluate the Effectiveness of Hot Water Foot Bath on Level of Fatigue Among Patients Undergoing Hemodialysis in a Selected Hospital At Coimbatore.

## Objectives

The objectives of this study were:

- To assess the pre and post test level of fatigue among patients undergoing hemodialysis in experimental and control group.
- To evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis in experimental group.
- To determine the association between the post test level of fatigue among patients undergoing hemodialysis with their selected demographic variables ( Age, Sex, Education, Occupation, Monthly Income, Duration of Illness, Duration of Dialysis and Any associated Illness ) .

## Hypotheses

- $H_1$: There is a significant difference between the mean pre and post test score on level of fatigue among patients undergoing hemodialysis.
- $H_2$: There is a significant association between the post test level of fatigue among patients undergoing hemodialysis with their selected demographic variables ( Age, Sex, Education, Occupation, Monthly Income, Duration of Illness, Duration of Dialysis and Any associated Illness ).

Design : A quantitative evaluative approach, a quasi experimental pre test post test with control group design was used.

Participants : 60 patients were selected, 30 each in experimental and control group, by using non purposive sampling technique in a selected KG Hospital at Coimbatore.

Intervention : Hot water foot bath is the immersion of both feet and ankles into the hot water at 104° F (40°C ), for 15 minutes after 20 minutes of dialysis, for 5 days.

Tool : Modified Piper Fatigue Scale was used to evaluate the level of fatigue.

Result : Analysis and interpretation was done by using dependent and independent 't' test found significant values 3.75 and 10.01 respectively at $p<0.05$ level.

Conclusion : Hot water foot bath resulted in reduction in level of fatigue among patients undergoing hemodialysis.

Keywords : Hot Water Foot Bath, Fatigue, Patients Undergoing Hemodialysis

# TABLE OF CONTENTS


| CHAPTER NO | CONTENTS | PAGE NO |
|---|---|---|
| I | INTRODUCTION | |
| | ➢ Need for the Study | 5 |
| | ➢ Statement of the Problem | 8 |
| | ➢ Objectives | 8 |
| | ➢ Hypotheses | 9 |
| | ➢ Operational Definitions | 9 |
| | ➢ Assumptions | 10 |
| | ➢ Delimitations | 11 |
| | ➢ Projected Outcomes | 11 |
| II | REVIEW OF LITERATURE | |
| | ➢ Studies related to fatigue among patients undergoing hemodialysis. | 12 |
| | ➢ Studies related to effectiveness of hot water foot bath. | 15 |
| | ➢ Studies related to hot water foot bath on level of fatigue among patients undergoing hemodialysis. | 19 |
| | CONCEPTUAL FRAMEWORK | 20 |
| III | METHODOLOGY | |
| | ➢ Research Approach | 23 |

| CHAPTER NO | CONTENTS | PAGE NO |
|---|---|---|
| | ➢ Research Design | 23 |
| | ➢ Variables | 24 |
| | ➢ Setting of the Study | 27 |
| | ➢ Population | 27 |
| | ➢ Sample | 27 |
| | ➢ Criteria for Sample Selection | 28 |
| | • Inclusion Criteria | |
| | • Exclusion Criteria | |
| | ➢ Sampling Technique | 29 |
| | ➢ Description of the Tool | 29 |
| | ➢ Scoring Procedure | 30 |
| | ➢ Content Validity | 31 |
| | ➢ Reliability | 31 |
| | ➢ Pilot Study | 31 |
| | ➢ Data Collection Procedure | 32 |
| | ➢ Plan for Data Analysis | 32 |
| | ➢ Protection of Human Rights | 33 |
| IV | DATA ANALYSIS AND INTERPRETATION | 34 |
| V | DISCUSSION | 63 |

| CHAPTER NO | CONTENTS | PAGE NO |
|---|---|---|
| VI | SUMMARY, CONCLUSION AND RECOMMENDATIONS | |
| | ➢ Summary | 67 |
| | ➢ Major Findings of the Study | 69 |
| | ➢ Conclusion | 69 |
| | ➢ Implications of the Study | 70 |
| | ➢ Recommendations | 71 |
| | REFERENCES | |
| | APPENDICES | |

# LIST OF TABLES


| TABLE NO. | TITLE | PAGE NO. |
|---|---|---|
| 1.1 | Frequency and Percentage Distribution of Patients Undergoing Hemodialysis according to their selected Demographic Variables in Experimental Group. | 35 |
| 1.2 | Frequency and Percentage Distribution of Patients Undergoing Hemodialysis according to their selected Demographic Variables in Control Group. | 38 |
| 2.1 | Frequency and Percentage Distribution on Level of Fatigue among Patients Undergoing Hemodialysis in Experimental Group. | 41 |
| 2.2 | Frequency and Percentage Distribution on Level of Fatigue among Patients Undergoing Hemodialysis in Control Group. | 43 |
| 3.1 | Mean, Standard Deviation, Mean Difference and 't' Value on Pretest and Post test Level of Fatigue among Patients Undergoing Hemodialysis in Experimental Group. | 45 |

| TABLE NO. | TITLE | PAGE NO. |
|---|---|---|
| 3.2 | Mean, Standard Deviation, Mean Difference and 't' Value on Pretest and Post test Level of Fatigue among Patients Undergoing Hemodialysis in Control Group. | 47 |
| 3.3 | Mean, Standard Deviation, Mean Difference and 't' Value on Post test Level of Fatigue among Patients Undergoing Hemodialysis in Experimental and Control Group. | 49 |
| 4.1 | Frequency, Percentage and $\chi^2$ Distribution of Post test Level of Fatigue among Patients undergoing Hemodialysis with their Selected Demographic Variables in Experimental Group. | 51 |
| 4.2 | Frequency, Percentage and $\chi^2$ Distribution of Post test Level of Fatigue among Patients undergoing Hemodialysis with their Selected Demographic Variables in Control Group. | 57 |

# LIST OF FIGURES


| FIGURE NO. | TITLE | PAGE NO |
|---|---|---|
| 1 | Conceptual Frame Work Based on General System Theory (Albawing Von Bettenlafy) | 22 |
| 2 | The Schematic Representation of Research Methodology. | 26 |
| 3 | Level of Fatigue among Patients Undergoing Hemodialysis in Experimental Group. | 42 |
| 4 | Level of Fatigue among patients undergoing Hemodialysis in Control Group. | 44 |
| 5 | Mean Value of Fatigue among Patients Undergoing Hemodialysis in Experimental Group. | 46 |
| 6 | Mean Value of Fatigue among Patients Undergoing Hemodialysis in Control Group. | 48 |
| 7 | Mean Value of Fatigue among Patients Undergoing Hemodialysis in Experimental and Control Group. | 50 |

# LIST OF APPENDICES


| APPENDIX | TITLE |
|---|---|
| A | Letter requesting the Opinion of Experts on Content Validity of the Tools and Intervention. |
| B | Certificate of Validation |
| C | List of Experts Consulted for Content Validity. |
| D | Letter Seeking and Granting permission to conduct the Study. |
| E | Self administered Questionnaire (English). |
| F | Self administered Questionnaire (Tamil). |
| G | Scoring Procedure. |
| H | Evaluation Criteria Checklist for Tool Validation. |
| I | Hot Water Foot Bath Procedure. |
| J | Photos. |

# CHAPTER I

# INTRODUCTION

*“Our fatigue is often caused not by work,*

*but by worry, frustration and resentment”.*

*- Dale Carnegie*

Health is the level of functional or metabolic efficiency of a living being. In humans, it is the general condition of a person's mind and body, usually meaning to be free from illness, injury or pain. The World Health Organization (WHO) defined health in its broader sense as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”.

Kidney is a vital organ and the main function of the kidneys is to remove waste products and excess water from the blood. The kidneys purify about 200 liters of blood every day and produce about two liters of urine. The waste products are generated from normal metabolic processes including the breakdown of active tissues, ingested foods, and other substances.

Kidney diseases are silent killers which largely affect the quality of life. Chronic Kidney Disease( Herein after refered to as CKD ) also known as chronic renal disease, is the progressive loss in renal function over a period of months or years. Chronic kidney disease is a widespread medical condition that is progressive in nature.

The symptoms of worsening kidney function are non-specific, and might include feeling generally unwell and experiencing a reduced appetite. Often, chronic kidney disease is diagnosed as a result of screening of people known to be at risk of kidney problems, such as

those with high blood pressure or diabetes and those with a blood relative with chronic kidney disease.

Chronic kidney disease is identified by a blood test for creatinine. Higher levels of creatinine indicate a lower glomerular filtration rate and as a result a decreased capability of the kidneys to excrete waste products. Creatinine levels may be normal in the early stages of CKD and the condition is discovered if urinalysis shows protienuria or hematuria. To fully investigate the underlying cause of kidney damage, various forms of medical imaging, blood tests and often renal biopsy are employed to find out if there is a reversible cause for the kidney malfunction. Recent professional guidelines classify the severity of chronic kidney disease in five stages, with stage 1 being the mildest and usually causing few symptoms and stage 5 being a severe illness with poor life expectancy if untreated. Stage 5 CKD is often called End Stage Renal Disease (ESRD) and is synonymous with the now outdated terms chronic kidney failure (CKF) or chronic renal failure (CRF).

End stage renal disease represents a major problem for public health and it brings about complex implications to social and economic structures of every nation in the world. According to Kidney Wales foundation in UK, more than 500 million people worldwide- approximately one in ten adults have some form of kidney damage. Too many people ignore the close inter-relationship between kidney diseases and diabetes or hypertension. Worldwide, 246 million people suffer from diabetes and expected that it will be 380 million by 2025. Diabetic nephropathy affects one third of people suffering from diabetes and approximately 1.5 million people worldwide are kept alive by renal dialysis.

As renal function declines, the disease ultimately reaches the life- threatening end stage, which requires urgent replacement therapy, either by dialysis or transplantation. Dialysis is a treatment for kidney failure that removes waste and extra fluid from the blood, using a filter. Two types of dialysis are hemodialysis and peritoneal dialysis. Hemodialysis removes wastes and water by circulating blood outside the body through an external filter, called a dialyzer, which contains a semi permeable membrane.

Hemodialysis is the most common method used to treat advanced and permanent kidney failure. In recent years more compact and simpler dialysis machines have made dialysis increasingly attractive. But even with better procedures and equipment, hemodialysis is still a complicated and inconvenient therapy.

Hemodialysis patients experience a range of symptoms, with considerable variation in the frequency of symptoms experienced and in the severity with which the symptoms affected the individuals. Symptoms expression is significantly associated with sleep problems, fatigue and poor physical functioning. There is considerable potential for enhancement of quality of life by minimizing the symptoms experienced.

Most people who require hemodialysis have a variety of health problems. Hemodialysis prolongs life for many people, but life expectancy for people who need hemodialysis is still less than that of the general population. During or after the hemodialysis treatment people will experience a range of problems such as fatigue(95%), sleep disorders(90%), headache(84%), nausea and vomiting(76%), fluid overload(75%) and muscle cramping(67%) etc.

Fatigue is one of the most frequent complaints of hemodialysis patients and is associated with impaired health related quality of life. Fatigue is documented as a negative symptom

experienced by a large number of patients with end stage renal disease undergoing hemodialysis. Fatigue is a distressing symptom and the consequences of fatigue can be overwhelming. Individuals with fatigue have avoidance behavior, experience, a sense of loss and diminished quality of life.

Fatigue is a highly prevalent symptom experienced by persons who live with chronic renal failure with a prevalence ranging from 60 to 97%. According to Ann E. Horigan, over 50% of Chronic Renal Failure patients complained of persistent fatigue before the initiation of dialysis therapy and continued to experience while on dialysis and after the dialysis. CRF patients most of the life time they spend with fatigue. Fatigue has been identified by chronic renal failure patients who undergo hemodialysis treatment as a distressing and disability symptom that interfere with their general activity, mood, walking ability, relation with other people and enjoyment of life. Fatigue is often under recognized and under treated by health care provider. There are many uses of complementary therapies to reduce fatigue and it is becoming a significant part of modern day health care with millions taking treatment each year. The most used therapies are hydrotherapy, biofeedback, aromatherapy, relaxation technique, massage, and acupuncture. Hydrotherapy is the use of water to relieve discomfort and promote physical wellbeing.

A hot water foot bath warms the skin, which causes vessel dilation and induces heat dissipation. Foot bath is an effective method of relaxation, since it increases sympathetic activity. In addition, foot bath increases white blood cells and natural killer cells. When warm water foot bath therapy is applied at a $40^0$C to $42^0$C temperature to the body, the capillary vessels dilate and become flaccid and exhibit signs of loss of tension.

Untreated fatigue may impact greatly on quality of life, leading to increased dependence on others, weakness, increased physical and mental energy, social withdrawal and depression. A hot water footbath therapy increases blood circulation, relaxes muscle tension, relieves congestion in the internal organs and brain and stimulate nerve ending of the soles thereby it exhibits a deep sense of relaxation.

## Need for the Study

Fatigue is a debilitating symptom or side effect experienced by many patients on long-term dialysis. Fatigue has a considerable effect on patients health-related quality of life and is viewed as being more important than survival by some patients.

According to United States International conference report (2016) approximately 1 in 1,000 people are getting treated for ESRD, and greater than 19 million adults are living with some type of Chronic Kidney Diseases.

According to Renal Data System Annual Data Report in U.S ,(2016) more than 660,000 Americans are being treated for kidney failure, also called end stage renal disease, or ESRD. Of these, 468,000 are dialysis patients, more than 193,000 have a functioning kidney transplant.

More than 650,000 patients per year in the United States and an estimated 2 million patients worldwide are affected by End Stage Renal Disease (ESRD). ESRD is increasing in the United States by 5% per year.

As according to United States renal data system (2016) annual data repot prevalence rate for kidney dialysis is approx 1 in 320 or 26% or 477,458 people in USA.

According to International conference report ( 2016 ) in Canada, approximately 1.9 to 2.3 million people suffers from Chronic Kidney Disease.

According to Home and health statistics report( 2016 ) in India, one in 10 persons in the general population is estimated to have some form of Chronic Kidney Disease. About 175,000 new people have kidney failure (Stage V CKD) every year in India, requiring dialysis and/or kidney transplantation.

Based upon calculated extrapolations of data in reference to that of the USA, more than 1.2 million people in India currently are in need of kidney dialysis with approximately 1, 52, 000 new ESRD patients requiring renal replacement therapy every year.

A survey conducted by the Dialysis trust of Karnataka(2015) states that every month nearly 22,000 patient register for dialysis in Bangalore and there are around 6000 patients with renal failure who could use renal dialysis.

National kidney foundation (2014) stated that the kidney diseases rank third amongst life-threatening diseases and estimates approximately 200,000 people in India go into terminal kidney failure annually and millions more suffer lesser forms of kidney disease.

According to Indian Journal of Nephrology ( 2009) India has close to 950 nephrologists all over the country. There are 700 dialysis centers with a total of 4000 dialysis machines, predominantly in the private sector and mainly concentrated in cities, especially metros. There are around 20,000 patients undergoing dialysis at these centers. There are around 170

government recognized transplant centers in India, performing around 3500 transplants annually. State of Renal Replacement Therapy as in city wise details is shown below:

| City | No of Dialysis centers | No. of Dialysis Machines | No. of dialysis per month | Cost of dialysis per session | No. of transplant centers | No. of transplant per month |
|---|---|---|---|---|---|---|
| Delhi | 79 | 490 | 28,500 | 1600 | 10 | 35 |
| Mumbai | 112 | 600 | 40,000 | 750 | 20 | 16 |
| Chennai | 44 | 146 | 10,220 | 1200 | 17 | 34 |
| Calcutta | 36 | 250 | 20,000 | 1100 | 10 | 20 |

Cho J, Lee J, Han M (2011) conducted an experimental study to evaluate the effectiveness of warm water foot bath and foot reflexology on fatigue and pain among 33 Chronic Renal Failure patients by using Multi-dimensional fatigue and pain scale assessment. The study revealed that the post test score of fatigue and pain is reduced. The study concluded that warm water foot bath and foot reflexology had effective in reducing level of fatigue and pain.

The investigator observed during the clinical postings in nephrology units that most of the patients receiving dialysis were suffering from fatigue. So the investigator was interested to reduce the level of fatigue by providing one of the non invasive and non pharmacological management techniques “Hot Water Foot Bath” to the patients undergoing hemodialysis. Researcher’s zeal and significance of problem prompted to select hot water foot bath, a simple technique in patients undergoing hemodialysis to reduce level of fatigue.

## Statement of the Problem

A Study to Evaluate the Effectiveness of Hot Water Foot Bath on Level of Fatigue Among Patients Undergoing Hemodialysis in a Selected Hospital At Coimbatore.

## Objectives

The objectives of this study were:

- To assess the pre and post test level of fatigue among patients undergoing hemodialysis in experimental and control group.
- To evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis in experimental group.
- To determine the association between the post test level of fatigue among patients undergoing hemodialysis with their selected demographic variables ( Age, Sex, Education, Occupation, Monthly Income, Duration of Illness, Duration of Dialysis and Any associated Illness ) .

## Hypotheses

- $H_1$: There is a significant difference between the mean pre and post test score on level of fatigue among patients undergoing hemodialysis.
- $H_2$: There is a significant association between the post test level of fatigue among patients undergoing hemodialysis with their selected demographic variables ( Age, Sex, Education, Occupation, Monthly Income, Duration of Illness, Duration of Dialysis and Any associated Illness ).

## Operational Definition

### Evaluate

It means to judge or calculate the quality, importance, amount or value or something.

In this study, it refers to the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis, as measured by the post-test assessment.

## Effectiveness

It means the ability to be successful and produce the indended results.

It refers to the extent to which the change is observed in the level of fatigue among patients undergoing haemodialysis after the implementation of hot foot bath and is measured in terms of significant difference in the post test score on fatigue.

## Hot water foot bath

It refers to the immersion of both feet and ankles into the hot water at 104° F (40°C ), for 15 minutes after 20 minutes of dialysis, for 5 days.

## Fatigue

It means to make someone extremely tired**.**

It refers to an overwhelming sense of exhaustion and decreased capacity of physical and mental activity which is measured by Modified Piper fatigue Scale.

## Patients Undergoing Hemodialysis

Hemodialysis is a medical procedure to remove fluid and waste products from the blood and to correct electrolyte imbalances. This is accomplished by using a machine and a dialyzer, also referred to as an "artificial kidney". In this study, it refers to the patients who are undergoing hemodialysis in the selected hospital.

# Assumptions

- Patients undergoing hemodialysis may experience varying level of fatigue.
- Hot water foot bath has an influence on fatigue.

- Hot water foot bath has no potential adverse effects on patient undergoing hemodialysis.
- Hot water foot bath is a simple and cost effective measure to reduce fatigue.

## Delimitations

- The study was delimited to patients undergoing hemodialysis in a selected hospital at Coimbatore.
- Data collection period was limited to 6weeks.

## Projected Outcomes

- The study findings will help the nurse to assess the level of fatigue by using Modified Piper Fatigue Scale.
- The study findings will help the nurse to identify the effectiveness of hot water foot bath on level of fatigue.
- The study findings will help the nurses to improve hot water foot bath intervention among patients undergoing hemodialysis in reducing level of fatigue.
- The study finding will enable the nurses to advice the practice of hot water foot bath as an intervention among patients undergoing hemodialysis in reducing level of fatigue.

# CHAPTER II

# REVIEW OF LITERATURE

Review of literature is an important step in the development of any research project. According to Polit and Hungler (2004), literature review is a critical summary of research on a topic of interest, often prepared to put a research problem in context.

According to Basavanthappa B.T (2014) Review of Literature is defined as "a broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audio-visual materials and personal communications."

For the study, the literature reviews are divided into the following

- Studies related to fatigue among patients undergoing hemodialysis.
- Studies related to effectiveness of hot water foot bath.
- Studies related to hot water foot bath on level of fatigue among patients undergoing hemodialysis.

## Studies related to fatigue among patients undergoing hemodialysis

Johnson D(2016) conducted a observational and descriptive study on Patient-reported outcome measures for fatigue among 150 patients on hemodialysis in ISN Academy, India by using Chalder Fatigue Scale. The study findings revealed that fatigue is one of the most prevalent and debilitating symptom in patients on hemodialysis. The study concluded that a standardized and psychometrically robust instrument that measures relevant and important dimensions of fatigue is needed to inform the development and evaluation of interventions and patient-centered

strategies to manage fatigue, and ultimately improve overall treatment satisfaction, health outcomes and patient well-being in hemodialysis.

Salazar Robles E ( 2016) conducted a study on differences between female and male patients about the impact of hemodialysis therapy on several aspects of their lives in ISN Academy, West coast of Mexico by using standardized questionnaire. The study findings revealed that female patients perceived significantly more negative impact of Hemodialysis than male patients in most aspects of their lives. This study concluded that impact of Hemodialysis could be useful to provide better treatment to patients and improve their satisfaction with care and quality of life.

Mehta R (2012-2016) conducted a retrospective descriptive study related to profile of the chronic kidney disease 1425 patients undergone hemodialysis at BP Koirala Institute of Health Sciences in Nepal. The study findings revealed that CKD is the most common leading cause for dialysis common in all age group of peoples both men and females.

Babalj Banskolieva E, Grozdanovski R(2015) conducted a descriptive study on the impact of different groups of fatigue on recovery time after hemodialysis session among 57 patients undergoing hemodialysis in ISN Academy, Mexico by using structured questionnaire. This study concluded that recovery time was independently associated with tiredness (general fatigue) and physical fatigue quality.

Usta Y.Y , Detmlr Y ( 2014 ) were conducted an analytic study on evaluation of factors affecting fatigue in hemodialysis patients among 90 samples, in a state private unit in India by using visual analog scale. The study revealed that the patients receiving hemodialysis treatment had higher levels of fatigue particularly in the post dialysis period. This study concluded that preparing education programs for the patients post hemodialysis fatigue management and arranging weekly patient group meeting for them to share their experiences of fatigue would be beneficial.

Chia – ter Chao , Jeng Wen Huang ( 2014 ) conducted a study to evaluate the functional assessment of chronic illness therapy, and the level of fatigue among 60 chronic dialysis patients in Taiwan, by using brief fatigue inventory scale , functional assessment of chronic illness therapy fatigue, fatigue severity scale ,lee fatigue scale , fatigue questionnaire , fatigue symptoms inventory and SF-36 validity . The study revealed that fatigue severity by FACITF was significantly associated with age, serum albumin and creatinine levels while SF 36 scores were also significantly associated with age, and serum creatinine levels. This study concluded that significant and independent association with important outcome related features in end stage renal disorder patients.

Unruh M.( 2013) conducted a study on Ecological Momentary Assessment Of Fatigue, Sleepiness, And Exhaustion In End-Stage Kidney Disease among 57 patients undergoing hemodialysis in ISN Academy south Africa by using a 7-point Likert scale. The study findings revealed that patients may experience small but statistically significant increases in fatigue level, sleepiness and exhaustion on dialysis days. The study concluded that Further research is needed to explore the potential causes and reduce the level of fatigue and improve the quality of sleep.

Ann E Horigan , Susan M. Schnader ( 2013 ) conducted a study on the experience and self management of fatigue in hemodialysis patients among 14 adults patients on incenter hemodialysis in a rural area in the mid – Atlantic U.S by using interview questionnaire . This study revealed that the depression and sleep disorders are often associated with fatigue in chronic illness, participants in the current study reported feeling wash out and drained physically. The study concluded that self management is effective reducing level of fatigue.

Teruel J. L , Martins J.( 2006 ) conducted an experimental study on temperature of the dialysis bath and hemodialysis tolerance , among 31 patients in Raman Y Cajal Hospital Madrid, by using specific scale questionnaire . The study revealed that low temperature dialysate is particularly beneficial for highly symptomatic patients. Dialysis symptoms score and post dialysis fatigue score were better with the low dialysate temperature and low temperature

dialysate shortened the post dialysis fatigue period. The study concluded that the low temperature dialysate help to reduced the level of fatigue among patient undergoing hemodialysis.

## Studies related to Effectiveness of Hot water Foot Bath

Shigehiko Ogoh, Ryohei Nagaoka, Takamasa Mizuno, Shohei Kimura, Yasuhiro Shidahara, Tomomi Ishii, Michinari Kudoh, Erika Iwam (2016) conducted a study to assess the acute vascular effects of carbonated warm water lower leg immersion in 80 healthy young adults in shikago. The study revealed that immersion of the lower legs and feet in mild warm $CO_2$-rich water improves endothelial-mediated vasodilator function and arterial stiffness while causing less heat stress. The study concluded that warm water may be a useful therapeutic tool for patients with hypertension or peripheral occlusive arterial disease while causing less heat stress.

Kyeong-Yae Sohng(2015) conducted a quasi experimental study on the effects of footbath on sleep among 60 older adults in nursing home in South Korea using actigraphy and a sleep disorder inventory. The study revealed that daily, 30-min foot-bathing therapy sessions with water at 40 °C were effective in improving sleep quality for older adults. The study concluded that foot bath therapy was more effective for participants with poor sleep quality at baseline assessment than those with relatively good sleep quality.

Wen Chun Liao, Ming Jang Chiu, Carol A. Landis (2014) conducted a study to assess the effectiveness warm water foot bath for level of fatigue and sleep in 30 older adults in Taiwan. Participants were assigned randomly to receive a 41°C footbath for 40 minutes before sleep onset on night 2 or night 3. The study findings revealed that the post test level of fatigue is reduced and improved the quality of sleep. The study concluded that warm water foot bath is effective in reducing level of fatigue and improved the quality of sleep.

Ting Ye, Weiping TU and Gaosi Xu (2014) conducted a study to assess the effectiveness of hot water foot bath for the treatment of chronic renal failure among 100 samples

at Nanchang PR China , by using traditional Chinese medicine . The study revealed that thermal sweating can reduce interdialytic weight gain and improve the patient's blood pressure; Chinese herbal medicine can promote the excretion of uremic toxicities and reduce the skin disorders of the patients. The study concluded that Chinese medicine – medicated hot bath could be one of the adjuvant renal replacement method.

Zhara Abbas Ali madadi ,azimian (2014) conducted a clinical trial study on effect of warm foot bath with vibration on arteriovenous fistula puncture related pain in hemodialysis patients, among 31 samples in India by using numerical rating scale . The study shows that the pain intensity of warm foot bath with vibration method was lower than the control method. The study concluded that warm foot bath with vibration can be used as an effective palliative method to reduce pain of hemodialysis patients.

Xur Gaosi, Weping ( 2013 ) conducted a study to assess the effectiveness of hot water foot bath for the treatment of chronic renal failure patients in Nanchang, PR China, among 60 samples by using clinical parameters . The study revealed that the hot water foot bath could be one of the adjuvant renal replacement methods for hemodialysis patients.

Jose Amala Anilda and Thenmozhi. P ( 2013), conducted a study on effectiveness of hot water foot bath on level of fatigue among 30 elderly people in Chennai, India. The study revealed that the post test level of fatigue is reduced. The study concluded that there is effectiveness of hot water footbath on reducing the level of fatigue among elderly patients.

Allehe Seyyedrasooli (2013) conducted a study on effectiveness of footbath on level of fatigue among 60 elderly, in India by using fatigue severity scale. The study revealed that post test level of fatigue is reduced due to hot water foot bath therapy. The study concluded that there is effectiveness of hot water footbath on reducing the level of fatigue among elderly patients.

Yang HL, Chen XP, Lee KC, Fang FF, Chao YF(2012) conducted a two group longitudinal design study on the effects of warm-water footbath on relieving fatigue and insomnia of the 25 gynecologic cancer patients on chemotherapy. Participants in the

experimental group soaked their feet in 41°C to 42°C warm water for 20 minutes every evening for 15days .The study result revealed that participants in the experimental group reported a significant reduction in fatigue and improvement in sleep quality from the second session of chemotherapy and continued to improve during the study period. The study concluded that warm-water footbath intervention resulted in reduced fatigue and insomnia symptoms for gynecologic cancer patients during chemotherapy.

Eur J Appl Physiol (2012), conducted a randomized control trial on effect of hot foot bath on arterial stiffness in 100 healthy young and older women in Japan by using cardio-ankle vascular index. The foot bath trial subject immersed their foot in hot water for 30min, temperature ranges from 41-43 degree Celsius. The study revealed that hot water foot bath had transient improvement in arterial stiffness in both healthy and older women.

Selva Kumari.R(2011) conducted a quasi experimental one group pre and post test design on effect of hot water foot bath therapy on 80 clients with fever in Coimbatore India, by using clinical thermometer. The study revealed that hot water foot bath therapy is effective in reducing temperature level of clients with fever.

Liao W C, Chiu M J, Landis C A (2011) conducted a randomized single-blinded controlled trial study on hot water foot bath on sleep quality in 68 cancer clients, by using Pittsburgh Sleep Quality Index. Interventions was given at 41 degree Celsius for 15 minutes duration for 2 to 3 nights before the sleep onset. The study revealed that hot water foot bath was effective on sleep quality in clients with cancer.

Cider A, Angwald E (2009) conducted a prospective randomized study on immersion of both feet into hot water on biventricular function in 180 patients with chronic heart failure in UK, by using Echocardiography and Doppler. The study concluded that during acute hot water immersion cardiac output is increased ,reduction in heart rate, systolic and diastolic function. so immersion in hot water foot bath is an accepted regimen for patients with heart failure.

Seaki Y (2009) conducted an experimental randomized controlled trail on hot water foot bath on backache among 80 clients by using numerical pain scale in India. The study revealed that the pain score was significantly reduced by hot water foot bath. The study concluded that hot water foot bath is effective in reducing level of backache.

Sheeba Cherian (2008) conducted a quasi experimental post test only design on effect of foot bath on sleep onset time and relaxation among 60 clients with cancer in kerala, India by using observation checklist and relaxation rating scale. Intervention was administered for 15 minutes at 9.00 pm for 5 consecutive days among 30 participants. The study revealed that relaxation promotes the onset of sleep. The study concluded that foot bath therapy is effective in improving the quality of sleep.

## Studies related to hot water foot bath on fatigue among hemodialysis

Priya B, and Shyla Issac(2015) conducted a quasi experimental study on effectiveness of foot bath on fatigue among 60 patients with chronic renal failure undergoing hemodialysis in Coimbatore, Tamilnadu by using brief fatigue inventory scale. This revealed that the post test score of fatigue is reduced in the interventional group. The study concluded that foot bath is effective in reducing fatigue among CRF patients undergoing hemodialysis.

Soumya Suasn ( 2013 ) conducted a study to assess the effectiveness of hot water foot bath therapy on fatigue among 30 chronic hemodialysis patients in Mangalore by using Piper Fatigue Scale. The study revealed that the post test level of fatigue is reduced as compared to the pre test score. The study concluded that hot water foot bath is effective on relieving fatigue among chronic renal failure patients.

Ann Horigan, Judith Rocchiccioli, and Donna Trimm(2012) conducted a descriptive study on level of fatigue among 120 patients undergoing hemodialysis in India by using structured questionnaire . The study concluded that, nursing assessment of fatigue including hot water foot bath is important in the care of patients receiving dialysis in order to improve their quality of life.

# CONCEPTUAL FRAMEWORK

# GENERAL SYSTEM THEORY

# (ALBAWING VON BETTENLAFFY – 1968)

Tabot(1995) defined conceptual framework a network of interrelated changes that provide a structure for organizing and describing the phenomenon of intersect. Research studies are based on theoretical or conceptual framework that facilitates visualizing the problem and places the variables in the logical manner.

The present study aims at evaluating the effectiveness of hot foot bath on level of fatigue among patients undergoing hemodialysis. The conceptual frame work of the study is based on general system theory.

As per general system theory, all system is open in that there continual exchange of matter, energy and intervention. There are three components;

- Input
- Throughput
- Output

## Input

The information that enters into the system from the environment through its boundaries. In the study input is the assessment on level of fatigue by using Modified Piper Fatigue Scale.

Intervention is hot water foot bath for 15 minutes after 20 minutes of dialysis, for 5 days.

## Throughput

Is the operation phase it is the process that allows the input to be changed as output in such a way that it can be readily used by the system.

In this study during the activity phase the investigator administer hot water foot bath for 15 minutes after 20 minutes of dialysis for 5 days.

## Output

Is any information that is continuously processed through the system and enters the environment through system boundaries.

Output is reduction in level of fatigue which is reassessed by Modified Piper Fatigue Scale.

## Feedback

It emphasizes to strengthen the input and throughput, it is necessary if the output shows reduction in level of fatigue.

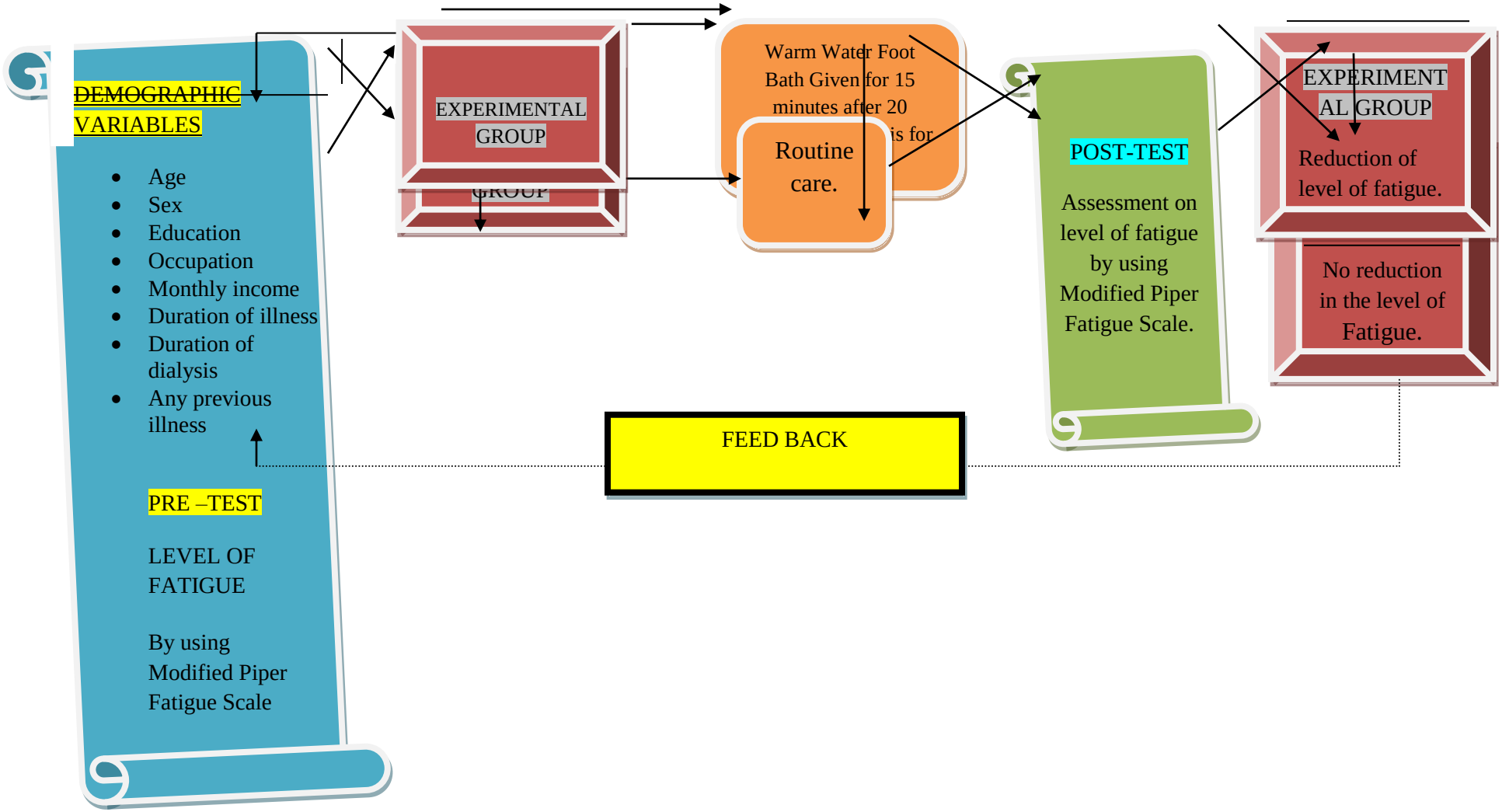



Fig 1 : Conceptual frame work based on modified general system theory ( Albawing von Bettenlafly – 1968 )

# CHAPTER III

# METHODOLOGY

Methology deals with the research approach, research design, variables, setting of the study, population, criteria for selection of the sample, sample size, sampling technique, description of the tool, scoring procedure, pilot study, data collection procedure, data analysis and protection of human rights.

According to Denis.F. Polit., (2011 ) methodology is defined as “ the steps, procedures and strategies for gathering and analyzing data”.

## Research Approach

According to Polit and Hungler, (2004 ) reasearch approach is defined as “ a general set of orderly discipline procedure used to acquire information”

A quantative evaluative approach was used to determine the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis.

## Research Design

According to Denis.F. Polit., (2011 ) research design is defined as “the overall plan for addressing a research questions including specification for enhancing the study’s integrity”. A quasi experimental pretest post test design with control group was chosen for the study to evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis.

A diagrammatic representation of research design is given below:

| Group | Pre -test | | Intervention | Intervention | Intervention | Post - test | |
|---|---|---|---|---|---|---|---|
| | Day 1 | | Day 3 | Day 5 | Day 8 | Day 10 | |
| Experimental Group | $X_1$ | O | O | O | O | O | $X_2$ |
| Control Group | $X_3$ | - | - | - | - | - | $X_4$ |

## Key

$X_1, X_3$ : Pre-test assessment of fatigue in experiment & control group respectively.

O : Hot water foot bath for 15 minutes after 20 minutes of dialysis, for 5 days.

$X_2$ , X4 : Post-test assessment of fatigue in experimental & control group respectively.

$X_2 - X_1$

$X_4 - X_3$ } Effectiveness of hot water foot bath on level of fatigue

$X_2 - X_4$

## Variables

According to Denise F. Polit (2011) variables is defined as " an attribute that varies, that is, takes on different values".

## Dependent Variable

According to Denise F. Polit (2011) dependent variable is defined as "the variable hypothesized to depend on or be caused by another variable of interest"

In this study the dependent variable is fatigue among patients undergoing hemodialysis.

## Independent Variable

According to Denise F. Polit (2011) Independent variable is defined as " the variable that is believed to cause or influence the dependent variables".

In this study independent variable is Hot Water Foot Bath for15 minutes after 20 minutes of dialysis for 5 days.

## Extraneous Variables

Polit and Hungler (2011) defined extraneous variables as "variable that confounds the relationship between the independent and dependent variables and that needs to be controlled either in the research design or through statistical procedures."

In this present study, extraneous variables are Age, Sex, Education, Occupation, Monthly income, Duration of Illness, Duration of Dialysis and Any associated illness.

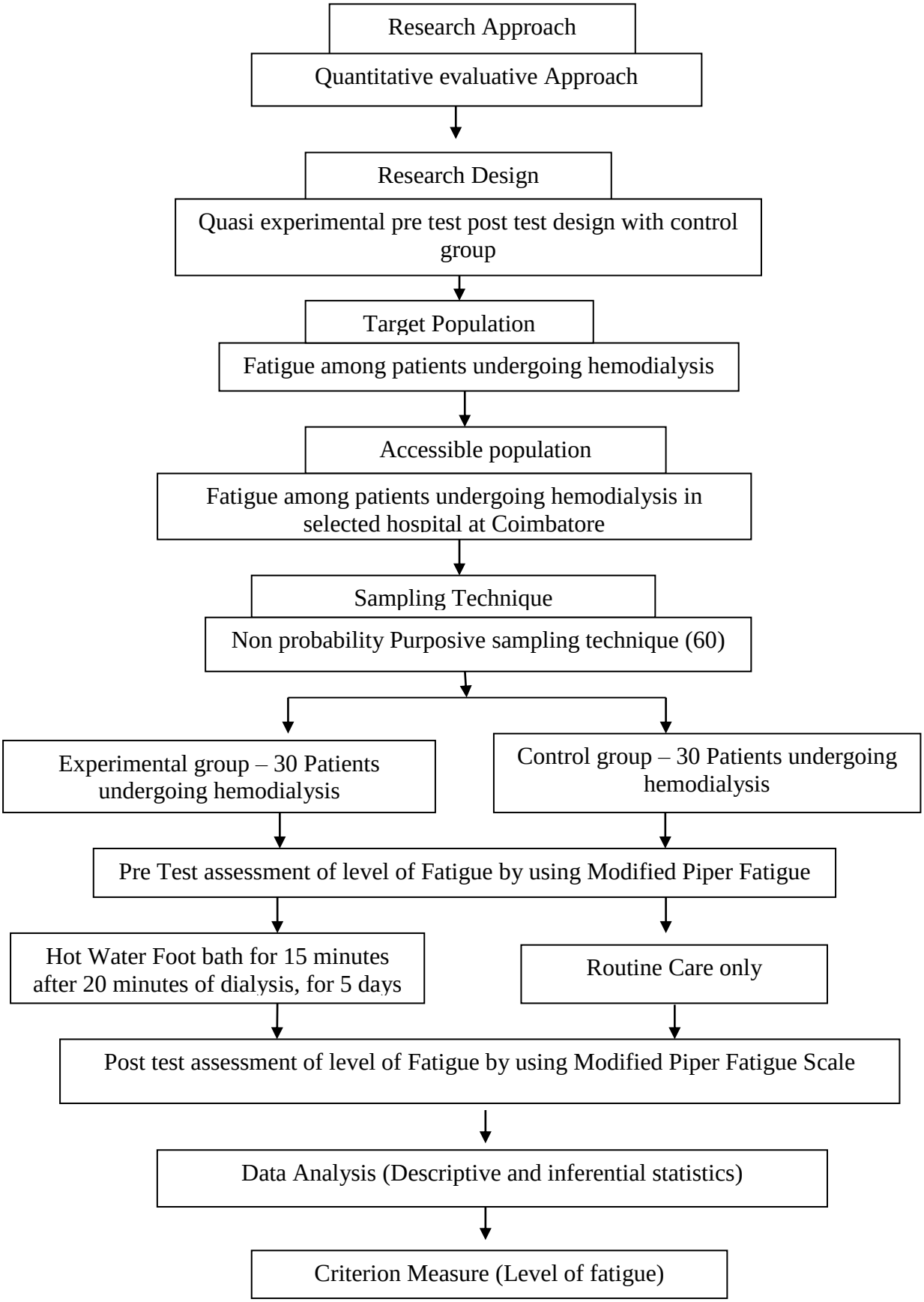



Fig 2. Schematic Representation of Research Methodology

## Setting of the Study

The study was conducted at KG hospital at Coimbatore. KG hospital is a 550 bedded NABH accredited multi specialty hospital; it has emergency care centre, separate male ward, female ward, Intensive Care Units(ICU), operation theaters (OT), well equipped cardio - thoracic and nephrology unit. The hemodialysis unit is equipped with 28 beds with advanced dialyzing machines. The regular dialysis is done from mondays to saturdays in 3 shifts /sessions (i.e) 7am, 11am and 3pm.

## Population

According to Denise F. Polit (2011) a population is defined as "the entire set of individuals or objects having some common characteristics."

The target population for the study was patients undergoing hemodialysis. The accessible population for the study was 60 patients undergoing hemodialysis in KG hospital Coimbatore.

## Sample

According to Denise F. Polit (2011) sample is defined as " a subset of a population comprising those selected to participate in a study".

The sample for the present study was patients undergoing hemodialysis at KG Hospital, Coimbatore.

## Sample Size

According to Denise F. Polit (2011) sample size is defined as, "the number of people who participate in a study".

Sample size was 60 patients undergoing hemodialysis at KG Hospital at Coimbatore who fulfilled the inclusion criteria among them 30 were in the experimental group and 30 were in the control group.

## Criteria for Sample Selection

## Inclusion Criteria

- Patients diagnosed as having CRF.
- Patients undergoing hemodialysis through jugular venous catheter and AV fistula.
- Age between 20 years to 60 years.
- Both the genders.
- Those who are undergoing hemodialysis for thrice a week.
- Those who know to read and write English or Tamil.

## Exclusion criteria

Patients undergoing hemodialysis who are

- Unconscious and terminally ill.
- Patients with poisoning, Acute Renal Failure
- Not willing to participate.
- With peripheral vascular diseases and skin disorders of the feet and legs.
- With sensory deficit.
- With any foot ulcer and Type 2 Diabetes Mellitus.
- With cerebro vascular accident

## Sampling Technique

According to Suresh K Sharma (2007) sampling technique is defined as, “the process of selecting a portion of the population to represent to the entire population”.

Non probability purposive sampling technique was used for the study.

## Description of the Tool

The tool was prepared in English after extensive review of literature and expert’s opinion. The Modified Piper Fatigue Scale was used to assess the level of fatigue.

The tool consisted of two parts;

### Part: I

It consisted of demographic variables of patients undergoing hemodialysis, including age, sex, education, occupation, monthly income, duration of illness, duration of dialysis and any associated illness.

### Part: II

This consisted of Modified self administered Piper Fatigue Scale to evaluate the level of fatigue among patients undergoing hemodialysis.

The Modified Piper Fatigue Scale consisted of 22 numerically scaled, ‘0’ to ‘10’ scores that measures four dimensions of subjective fatigue: behavioral / severity (6 items:#1-6); affective meaning (5 items:#7-11); sensory( 5 items: #12-16); and cognitive / mood (6 items:#17-22); these 22 items were used to calculate the four sub scale / dimension score and the total fatigue score .

## Scoring Procedures

Regarding Modified Piper Fatigue Scale, it consisted 22 items for assessing fatigue level. Each question consisted of 0-10 scores. The total maximum and minimum score were '220' and '0' respectively . To calculate the total fatigue score, add the scores of 22 items together and divide by 22 in order to keep the score on the same numeric '0' to '10' scale.

0 : None

1-3 : Mild fatigue

4-6 : Moderate fatigue

7-10 : Severe fatigue

## Hot Water Foot Bath

Hot water foot bath is the immersion of both feet and ankles into the hot water at 104° F (40°C), for 15 minutes after 20 minutes of dialysis, for 5 days.

## Validity and Reliability of the Tool

## Content Validity

According to Suresh K Sharma, (2007) content validity is defined as, "extent to which an instrument accurately reflects the abstract construct or concept being examined".

To ensure the content validity the tool the statement of the problem, objective, hypotheses, inclusion and exclusion criteria, intervention and criteria check list were given to five experts in nursing and two experts in medicine. Nursing experts were from Medical Surgical Nursing and Medical experts were from Nephrology department. According to expert's opinion the tool and intervention were found to be valid. The modifications were done based on the expert's suggestion and incorporated in the study.

## Reliability

According to Denise F. Polit(2011) reliability is defined as, “the degree of consistency or dependability with which an instrument measures an attribute”.

The reliability was assessed by using test retest method and the obtained reliability score r was 0.78. Hence it was highly reliable and the tool was used in this study.

## Pilot Study

According to Denise F. Polit (2011) Pilot Study is defined as “a small scale version or trial run, done in preparation of a major study”.

In order to check the feasibility and practicability, pilot study was conducted among 10 patients undergoing hemodialysis in NG Hospital, Singanallore Coimbatore. The pilot study was carried out and it was found feasible and practicable.

## Data Collection Procedure

The data collection procedure was done for a period of 6 weeks in dialysis units of KG Hospital at Coimbatore. Permission to conduct the study was obtained from the Chairman, Head of the nephrology department and unit in-charge of Dialysis Unit. The subjects were informed by the researcher about the nature and purpose of the study. Informed written consent was obtained as per the rule on day 1 by using Modified Piper Fatigue Scale to evaluate the level of fatigue among patients undergoing hemodialysis in both the groups followed by administration of hot water foot bath only for experimental group after 20minutes of dialysis for 15 minutes duration for 5 days ( i.e, Day 1,3,5,8,and 10). Post test was done on day 10 after 20 minutes of intervention for both the groups.

## Plan for Data Analysis

The demographic variables were analyzed by using descriptive statistics (frequency and percentage). The level of fatigue was analyzed by using descriptive statics (mean, standard deviation). The effectiveness of hot water foot bath on level of fatigue was analyzed by using inferential statistics (dependent ‘t’ test and independent ‘t’ test).Association between level of fatigue among patients undergoing hemodialysis and their selected demographic variables was assessed by using Chi- Square analysis.

## Protection of Human Rights

The study was conducted after the approval of research committee of the college and the hospital. The nature and purposes of this study was explained. Informed written consent was obtained from all the study subjects. Anonymity and confidentiality was maintained throughout the study. Hot water foot bath was demonstrated to the control group after the post test.

# CHAPTER IV

# DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the data collected from 60 patients undergoing hemodialysis in order to evaluate the effectiveness of hot water foot bath on level of fatigue.

According to Denise F Polit (2011), “analysis is the process of organizing and synthesizing data so as to answers research questions and test hypothesis”.

According to Denise F Polit (2011), “data is defined as the piece of information obtained in a study”.

The analysis and interpretation of data was based on the information collected through Modified self administered Piper Fatigue Scale. The results were computed by using descriptive (Mean,Frequency, Percentage Distribution, and Standard Deviation) inferential statistics ( Paired ‘t’ test, Independent ‘t’ test and Chi-Square)and the results were tabulated.

The study findings are presented in sections as follows:

Section I : Data on demographic variables of patients undergoing hemodialysis.

Section II : Data on level of fatigue among patients undergoing hemodialysis.

Section III : Data on effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis.

Section IV : Data on association between the level of fatigue among patients undergoing hemodialysis with their selected demographic variables.

## SECTION I : DATA ON DEMOGRAPHIC VARIABLES OF PATIENTS UNDERGOING HEMODIALYSIS

Table: 1.1

Frequency and Percentage Distribution of Patients undergoing Hemodialysis according to their Selected Demographic Variables in Experimental group

n=30

| S. No | Demographic Variables | Frequency f | Percentage % |
|---|---|---|---|
| 1 | Age (in years) | | |
| | a) 20 – 35 | 6 | 20 |
| | b) 36 - 50 | 10 | 33 |
| | c) 51 – 60 | 14 | 47 |
| 2 | Sex | | |
| | a) Male | 7 | 23 |
| | b) Female | 23 | 77 |
| 3 | Education | | |
| | a) Primary | 5 | 17 |
| | b) Secondary | 7 | 23 |
| | c) Higher secondary | 5 | 17 |
| | d) Diploma | 8 | 26 |
| | e) Degree / Equivalent | 5 | 17 |
| 4 | Occupation | | |
| | a) Government employee | 6 | 20 |
| | b) Private | 1 | 3 |
| | c) Self | 9 | 30 |
| | d) Unemployed | 12 | 40 |
| | e) Retired | 2 | 7 |

(Cont.,)

| S. No | Demographic variables | Frequency f | Percentage % |
|---|---|---|---|
| 5 | Monthly Income | | |
| | a) Below Rs.5000/- | 6 | 20 |
| | b) Rs.5001 – 10000/- | 11 | 36 |
| | c) Above 10000/- | 13 | 44 |
| 6 | Duration of illness | | |
| | a) Below 3 years | 4 | 13 |
| | b) 3 – 5 years | 10 | 33 |
| | c) Above 5 years | 16 | 54 |
| 7 | Duration of dialysis | | |
| | a) Below 3 hrs | 0 | 0 |
| | b) 3-4 hrs | 25 | 83 |
| | c) Above 4 hrs | 5 | 17 |
| 8 | Any associated illness | | |
| | a) Yes | 6 | 20 |
| | b) No | 24 | 80 |

Table 1.1 reveals that with regards to age of patients undergoing hemodialysis 6 ( 20% ) belonged to the age group of 20 – 35, 10 ( 33% ) belonged to the age group of 36 -50 years, 14 ( 47 % ) belonged to the age group of 51 – 60 years.

Regarding sex ,7 ( 23% ) were males and 23 ( 77% ) were females.

Regarding educational status 5 (17%) had primary education, 7 (23%) had completed their secondary education. 5 (17%) had completed their higher secondary education, 8 (26%) had completed their diploma, and 5 (17%) 0f them were graduates.

Regarding occupation, majority of them 12 (40%) are unemployed, 6 (20%) were government employees, 1 (3%) were worked in a private concern 9 (30%) were self employed, and 2(7%) were unemployed.

Regarding monthly income 6 (20%) having below Rs.5000/- rupees monthly income, 11 (36%) having Rs.5001 – 10000/-, and majority of them having 13 (44%) above Rs.10000/- monthly income.

Regarding duration of illness, majority 16 (54%) were suffering with illness more than 5 years, 10 ( 33%) were suffering from with illness 3-4 years and 4 (13 % ) were suffering with illness less than 3 years.

Regarding duration of dialysis majority of them 25 (83%) having 3-4 hrs duration of dialysis and 5 (17%) were having above 4hrs duration.

Regarding any illness majority 24 (80%) didn't have any associated illness, 6 (20%) having some associated with illness.

This table reveals that with regards to patients undergoing hemodialysis in experimental group majority were between 51-60 years, females, had their diploma education, were unemployed, had their monthly income Rs.10000/-, had illness for above 5 years, with duration of dialysis for 3-4 hours and were not having any associated illness.

Table:1.2

Frequency and Percentage Distribution of Patients undergoing Hemodialysis according to their Selected Demographic Variables in Control group.

n=30

| S. No | Demographic Variables | Frequency f | Percentage % |
|---|---|---|---|
| 1 | Age (in years) | | |
| | a) 20 – 35 | 5 | 17 |
| | b) 36 - 50 | 7 | 23 |
| | c) 51 – 60 | 18 | 60 |
| 2 | Sex | | |
| | a) Male | 13 | 43 |
| | b) Female | 17 | 57 |
| 3 | Education | | |
| | a) Primary | 5 | 17 |
| | b) Secondary | 4 | 13 |
| | c) Higher secondary | 3 | 10 |
| | d) Diploma | 13 | 43 |
| | e) Degree / Equivalent | 5 | 17 |
| 4 | Occupation | | |
| | a) Government employee | 4 | 13 |
| | b) Private | 6 | 20 |
| | c) Self | 10 | 33 |
| | d) Unemployed | 5 | 17 |
| | e) Retired | 5 | 17 |

(Cont.,)

| S. No | Demographic variables | Frequency f | Percentage % |
|---|---|---|---|
| 5 | Monthly Income | | |
| | a) Below Rs.5000/- | 7 | 23 |
| | b) Rs.5000 – 10000/- | 9 | 30 |
| | c) Above Rs.10000/- | 14 | 47 |
| 6 | Duration of illness | | |
| | a) Below 3 years | 5 | 17 |
| | b) 3 – 5 years | 19 | 63 |
| | c) Above 5 years | 6 | 20 |
| 7 | Duration of dialysis | | |
| | a) Below 3 hrs | 1 | 3 |
| | b) 3-4 hrs | 25 | 84 |
| | c) Above 4 hrs | 4 | 13 |
| 9 | Any associated illness | | |
| | a) Yes | 13 | 43 |
| | b) No | 17 | 57 |

Table 1.2 revealed that with regard to age ,majority of them 18(60%) belonged to the age group of 51-60 years, 7(23%) belonged to the age group of 36-50 years and 5(17%) belonged to the age group of 20-35 years.

Regarding sex, majority of them 17(57%) were females and 13(43%) were males.

Regarding educational status majority of them 13(43%) had completed diploma, 5(17%) had completed primary education, 4(13%) had completed secondary education, 3 (10%) had completed higher secondary education and, 5(17%) of them completed graduate level or equivalent.

Regarding occupation, majority of them were self employed, 4(13%) were government employees, 6 (20%) were working as private employees, 10(33%) were self employees, 5(17%) were unemployed and 5 (17%) were retired.

Regarding monthly income 7(23%) were having below Rs5000/-, 9(30%) having Rs5000 – Rs.10000/- and 14 (47%) having Rs.10000/- monthly income.

Regarding duration of illness majority of them 19(63%) were suffering with illness between 3-5 years, 6 (20%) were suffering with illness above 3 years and 5(17%) were suffering with illness less than 3 years.

Regarding duration of dialysis, majority 25(84%) under the duration of 3-4 hours, 4 (13%) having above 4 hours and 1(3%) having below 3 hours duration of dialysis.

Regarding any associated illness, majority 17(57%) of them didn't have any associated illness and 13(43%) having associated illness.

This table reveals that with regards to patients undergoing hemodialysis in control group majority were between 51-60 years, females, had their diploma education, were self employed, had their monthly income Rs.10000/-, had illness for 3- 5 years, with duration of dialysis for 3-4 hours and were not having any associated illness.

## SECTION II: DATA ON LEVEL OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS

Table:2.1

Frequency and Percentage Distribution on level of Fatigue among Patients undergoing Hemodialysis in Experimental Group

n=30

| S.No. | Level of Fatigue | Experiment Group | | | |
|---|---|---|---|---|---|
| | | Pre test | | Post test | |
| | | (f) | (%) | (f) | (%) |
| 1 | None | 0 | 0 | 0 | 0 |
| 2 | Mild | 0 | 0 | 1 | 3 |
| 3 | Moderate | 2 | 7 | 29 | 97 |
| 4 | Severe | 28 | 93 | 0 | 0 |

The above table 2.1 shows the level of fatigue among patients undergoing hemodialysis in the experimental group.

It reveals that among 30 patients undergoing hemodialysis in the experimental group, 2 (7%) of them had moderate level of fatigue and 28(93%) had severe level of fatigue and no one had mild or no fatigue in their pre test assessment. where as in the post test, 1(3%) of them had mild level of fatigue and 29((97%) had moderate level of fatigue and none had severe and no fatigue.

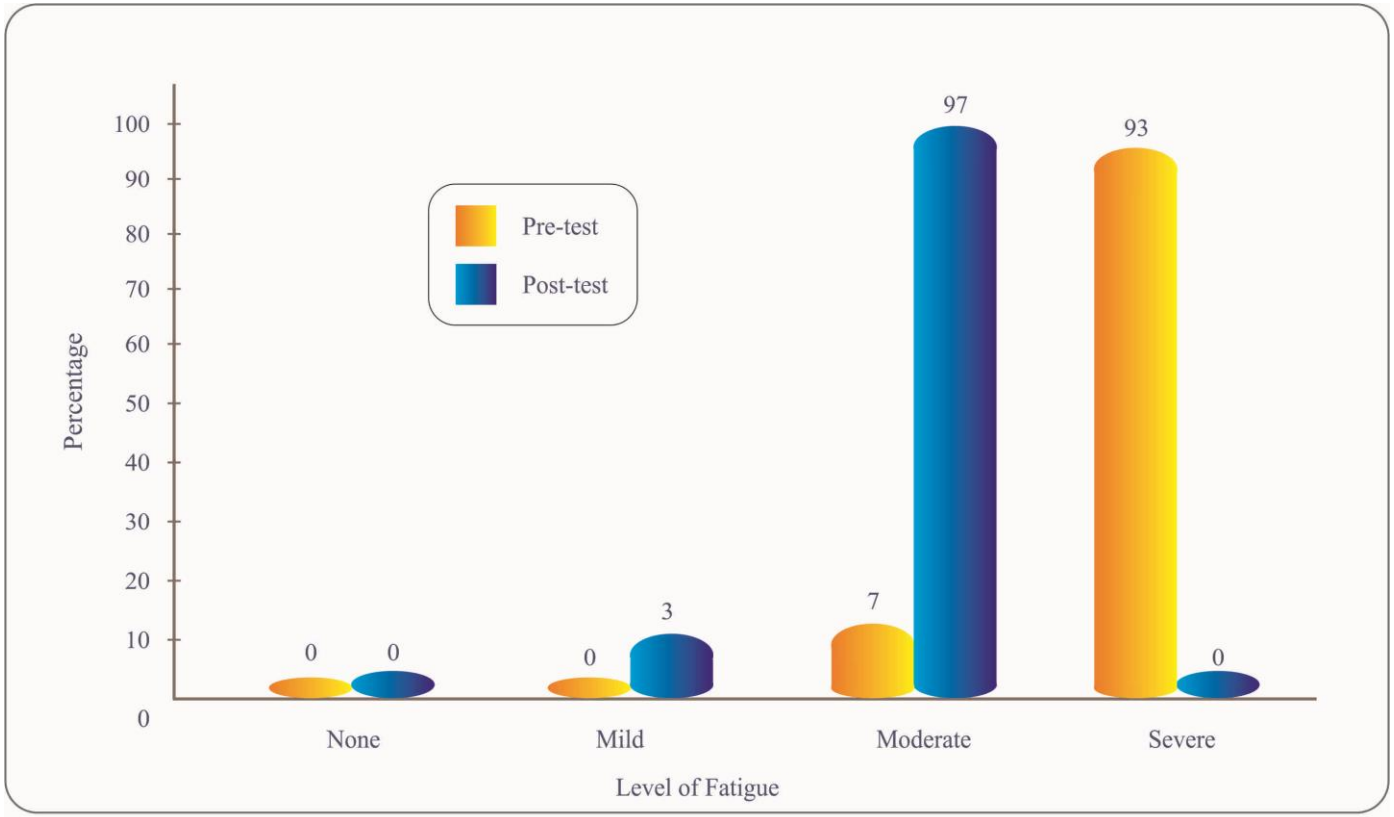



Fig 3 : Level of Fatigue among Patients under going Hemodialysis in Experimental Group.

Table:2.2

Frequency and Percentage Distribution of level on Fatigue among Patients undergoing Hemodialysis in Control group

n=30

| S.No | Level of Fatigue | Control Group | | | |
|---|---|---|---|---|---|
| | | Pre test | | Post test | |
| | | (f) | (%) | (f) | (%) |
| 1 | None | 0 | 0 | 0 | 0 |
| 2 | Mild | 0 | 0 | 0 | 0 |
| 3 | Moderate | 8 | 27 | 4 | 13 |
| 4 | Severe | 22 | 73 | 26 | 87 |

The above table 2.2 shows the level of fatigue among patients undergoing hemodialysis in control group.

It reveals that, among 30 patients undergoing hemodialysis in the control group 8(27%) of them had moderate level of fatigue, and 22(73%) had severe level of fatigue and no one had mild or no fatigue in their pretest assessment whereas in the post test assessment 4(13%) of them had moderate level of fatigue and 26(87%) had severe level of fatigue and no one had mild or no fatigue.

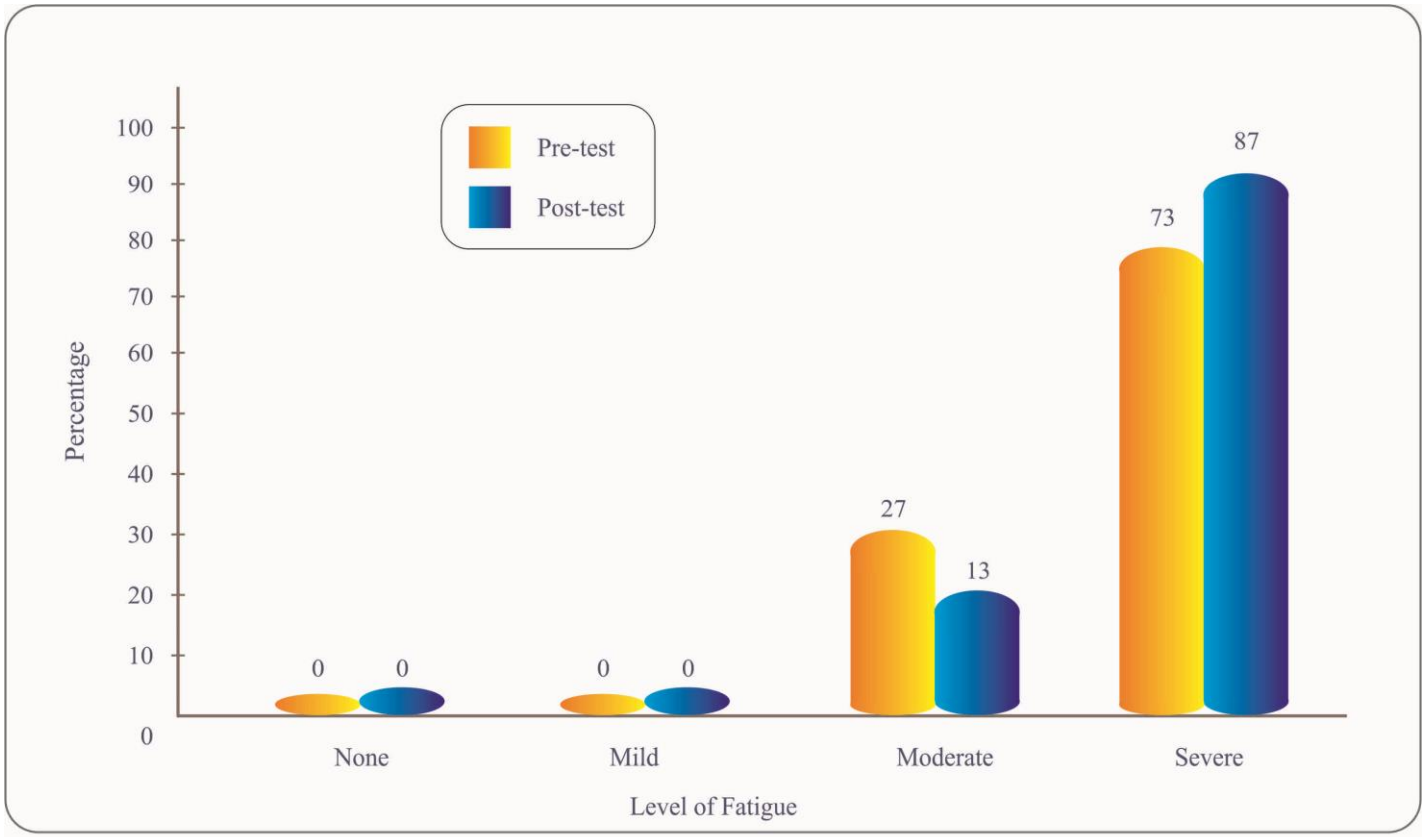



Fig 4 : Level of Fatigue among Patients under going Hemodialysis in Control Group.

## SECTION III: DATA ON EFFECTIVENESS OF HOT WATER FOOT BATH ON LEVEL OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIAYSIS

Table 3.1

Mean, Standard Deviation ,Mean Difference and ' t' Value on Pre test and Post test level of Fatigue among Patients undergoing Hemodialysis in Experimental group

n=30

| S.No. | Experimental Group | Mean | SD | MD | ' t' Value |
|---|---|---|---|---|---|
| 1 | Pre test | 7.6 | 0.94 | 2.76 | 3.75* |
| 2 | Post test | 4.83 | 0.8 | | |

*- significant at $p<0.05$ level

Table 3.1 reveals that among patients undergoing hemodialysis in experimental group the mean pretest score was 7.6 with the standard deviation 0.94 and the mean post test score was 4.83 with the standard deviation 0.8. The mean difference was 2.76 and the obtained 't' value was 3.75 where as the table value was 1.69. It was significant at $p<0.05$ level.

Hence the stated hypothesis ($H_1$) was accepted. It was inferred that hot water foot bath was highly effective in reducing fatigue among patients undergoing hemodialysis.

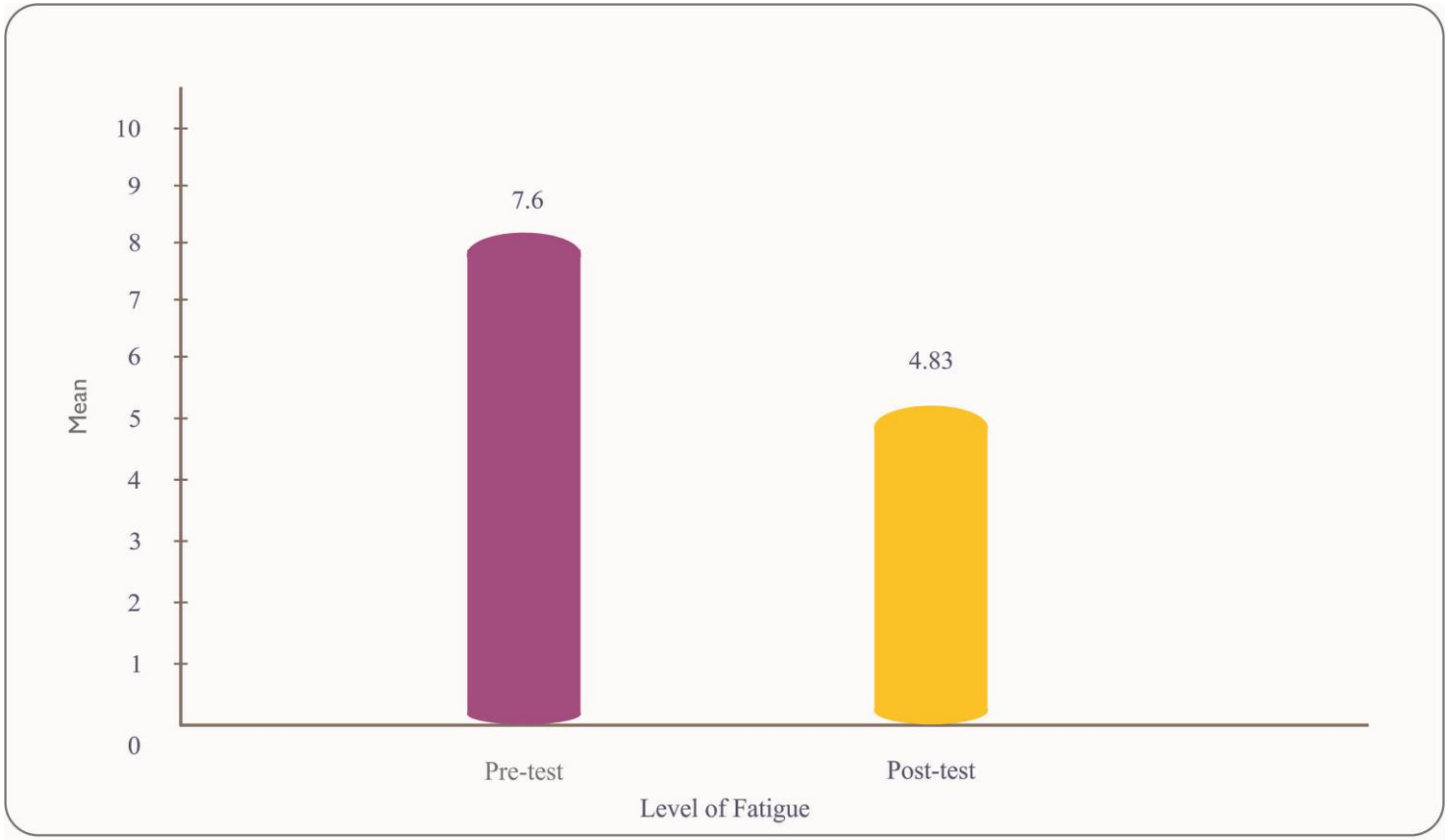



Fig 5 : Mean Level of Fatigue among Patients undergoing Hemodialysis in Experimental Group.

Table 3.2

Mean, Standard Deviation ,Mean Difference and ‘ t’ Value on Pre test and Post test Level of Fatigue among Patients undergoing Hemodialysis in Control group

n=30

| Sl. No. | Control Group | Mean | SD | MD | ‘ t’ Value |
|---|---|---|---|---|---|
| 1 | Pre test | 3.8 | 1.36 | 0.4 | $0.18^{NS}$ |
| 2 | Post test | 6.73 | 0.96 | | |

NS – Not Significant

Table 3.2 reveals that among patients undergoing hemodialysis in control group the mean pretest score was 3.8 with the standard deviation 1.36 and the mean post test score was 6.73 with standard deviation 0.96. The mean difference was 0.4 and the obtained ‘t’ value 0.18 was not significant.

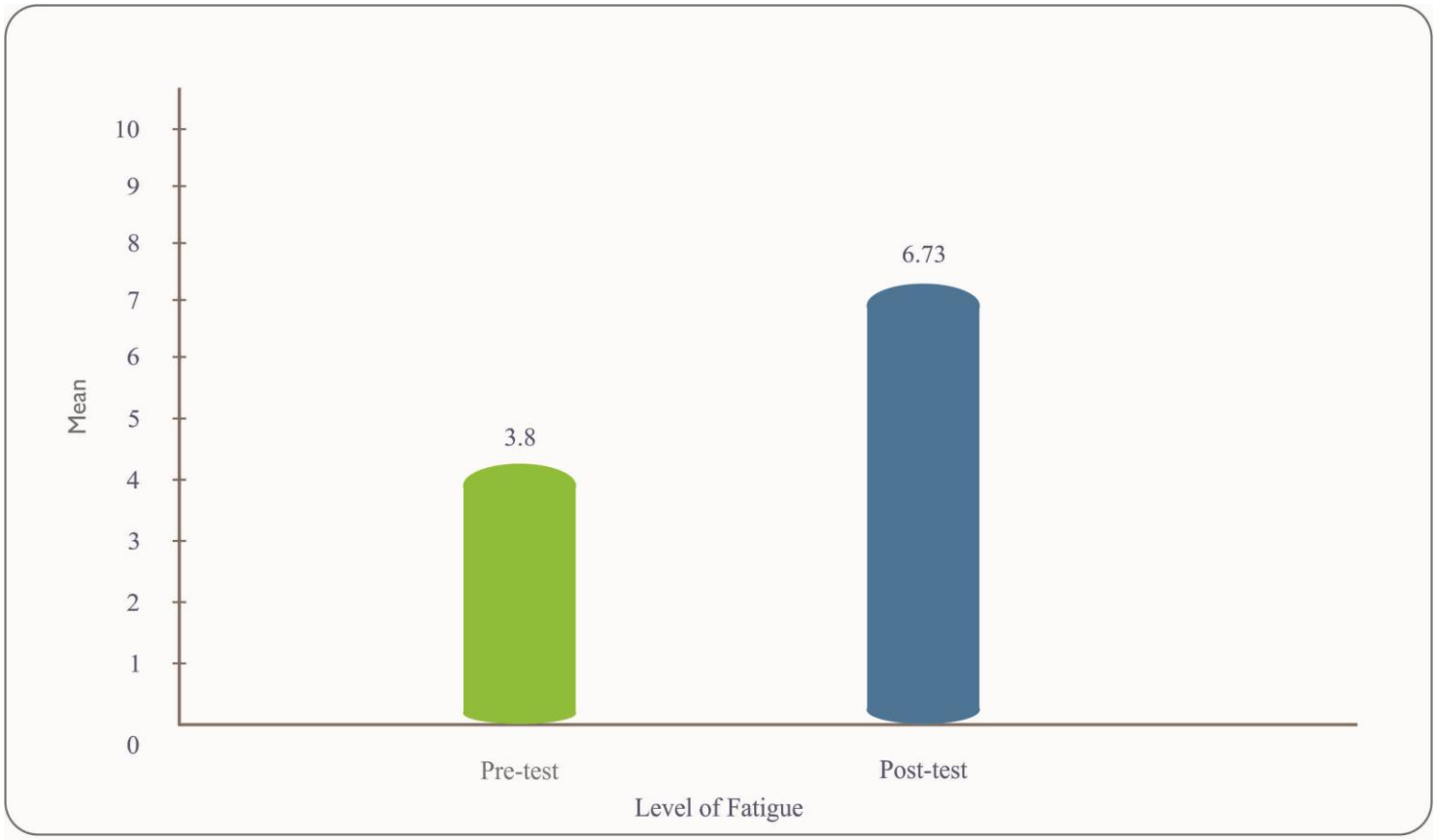



Fig 6 : Mean Level of Fatigue among Patients undergoing Hemodialysis in Control Group.

Table 3.3

Mean, Standard Deviation, Mean Difference and‘t’ Value on Post test Level of Fatigue among Patients undergoing Hemodialysis in Experimental Group and Control Group

N=60

| S.N | Post-Test | Mean | SD | MD | ‘ t’ value |
|---|---|---|---|---|---|
| 1. | Experimental Group | 4.83 | 0.8 | 0.15 | 10.01* |
| 2 | Control Group | 6.73 | 0.96 | | |

*- significant at p<0.05 level

Table 3.3 reveals that among patients undergoing hemodialysis in experimental group the mean post test score was 4.83 with standard deviation 0.8 and in control group the mean post test score was 6.73 with standard deviation 0.96. The mean difference was 0.15 and the obtained ‘t’ value 10.01 was significant at p<0.05 level.

Hence, the stated hypothesis ($H_1$) was accepted. It is revealed that hot water foot bath was highly effective in reducing fatigue among patients undergoing hemodialysis.

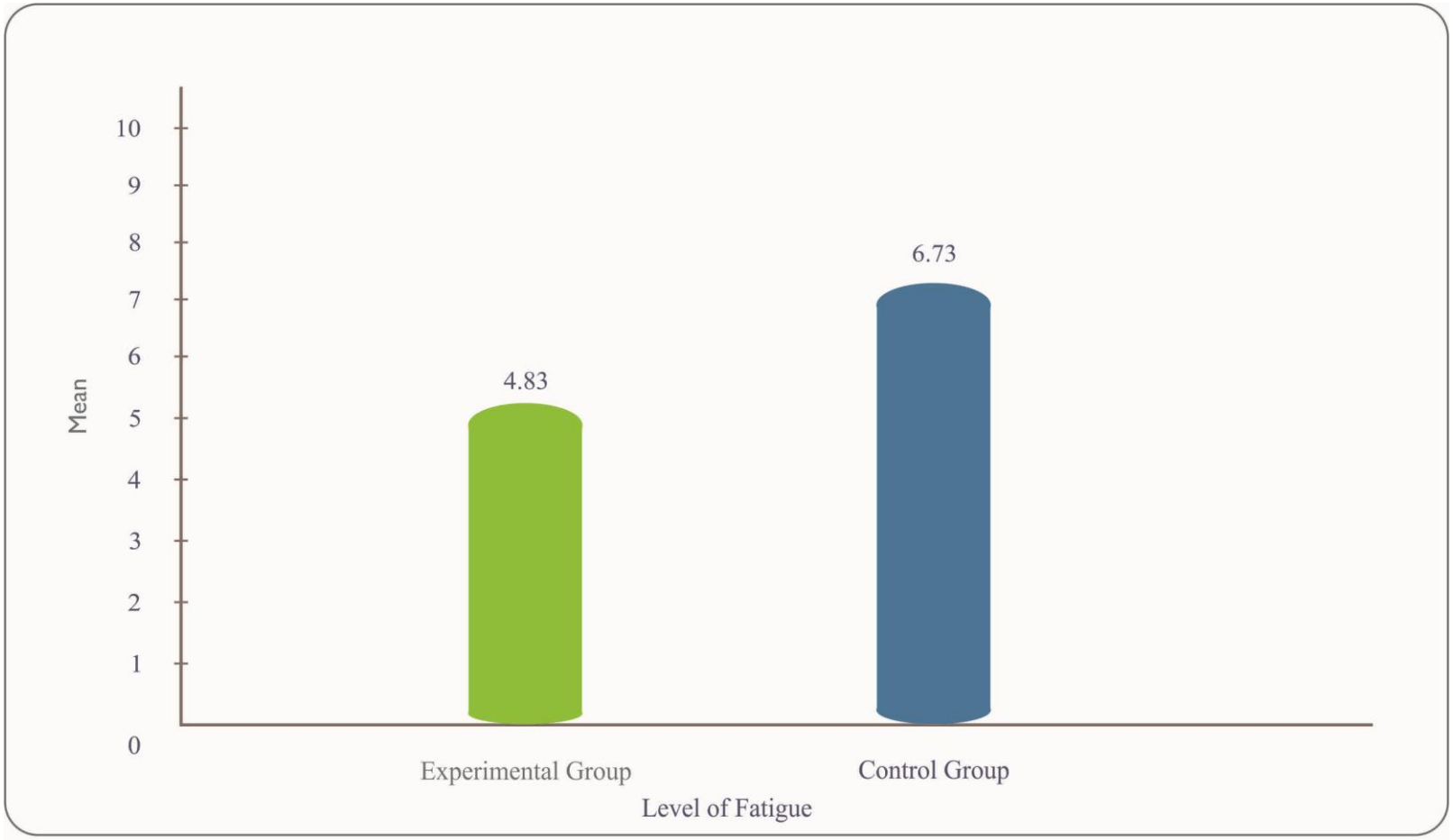



Fig 7 : Mean Level of Fatigue among Patients undergoing Hemodialysis in Experimental Group and Control Group.

## SELECTION IV: DATA ON ASSOCIATION BETWEEN POST TEST LEVEL OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES

Table:4.1

Frequency, Percentage and $\chi^2$ Distribution of Post test Level of Fatigue among Patients undergoing Hemodialysis with their Selected Demographic Variables in Experimental Group

n=30

| S. No. | Demographic Variables | Level of Fatigue in Experiment group | | | | | | $\chi^2$ Value |
|---|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | Severe | | |
| | | f | % | f | % | f | % | |
| 1. | Age in years | | | | | | | |
| | a) 20-35 | 0 | 0 | 6 | 20 | 0 | 0 | $1.49^{NS}$ |
| | b) 36-50 | 0 | 0 | 10 | 33 | 0 | 0 | df=2 |
| | c) 51-60 | 1 | 3 | 13 | 44 | 0 | 0 | |
| 2. | Sex | | | | | | | |
| | a) Male | 0 | 0 | 7 | 24 | 0 | 0 | $0.31^{NS}$ |
| | b) Female | 1 | 3 | 22 | 73 | 0 | 0 | df=1 |
| 3. | Education | | | | | | | |
| | a) Primary | 0 | 0 | 5 | 17 | 0 | 0 | |
| | b) Secondary | 1 | 3 | 6 | 20 | 0 | 0 | $3.39^{NS}$ |
| | c) Higher secondary | 0 | 0 | 5 | 17 | 0 | 0 | df=4 |
| | d) Diploma | 0 | 0 | 8 | 26 | 0 | 0 | |
| | e) Degree / Equivalent | 0 | 0 | 5 | 17 | 0 | 0 | |

(Cont.,)

| S. No. | Demographic Variables | Level of Fatigue in Experiment group | | | | | | $\chi^2$ Value |
|---|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | Severe | | |
| | | f | % | f | % | f | % | |
| 4. | Occupation | | | | | | | |
| | a) Government | 0 | 0 | 6 | 20 | 0 | 0 | 30.32* |
| | b) Private | 1 | 3 | 0 | 0 | 0 | 0 | df=4 |
| | c) Self employee | 0 | 0 | 9 | 30 | 0 | 0 | |
| | d) Un employed | 0 | 0 | 12 | 39 | 0 | 0 | |
| | e) Retired | 0 | 0 | 2 | 7 | 0 | 0 | |
| 5. | Monthly income | | | | | | | |
| | a) Below Rs.5000/- | 0 | 0 | 6 | 20 | 0 | 0 | 1.79NS |
| | b) Rs.50001 – 10000/- | 1 | 3 | 10 | 33 | 0 | 0 | df=2 |
| | c) Above Rs.10000/- | 0 | 0 | 13 | 44 | 0 | 0 | |
| 6. | Duration of illness | | | | | | | |
| | a) Below 3 years | | | | | | | |
| | b) 3-5 years | 1 | 3 | 3 | 10 | 0 | 0 | 6.73* |
| | c) Above 5 years | 0 | 0 | 10 | 34 | 0 | 0 | df=2 |
| | | 0 | 0 | 16 | 54 | 0 | 0 | |
| 7. | Duration of dialysis | | | | | | | |
| | a) Below 3 hours | | | | | | | |
| | b) 3 – 4 hours | 0 | 0 | 0 | 0 | 0 | 0 | 5.19* |
| | c) Above 4 hours | 0 | 0 | 25 | 84 | 0 | 0 | df=1 |
| | | 1 | 3 | 4 | 13 | 0 | 0 | |

(Cont.,)

| S. No. | Demographic Variables | Level of Fatigue in Experiment group | | | | | | $\chi^2$ Value |
|---|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | Severe | | |
| | | f | % | f | % | f | % | |
| 8. | Any associated illness | | | | | | | |
| | a) Yes | 1 | 3 | 5 | 17 | 0 | 0 | 4.13* |
| | b) No | 0 | 0 | 24 | 80 | 0 | 0 | df=1 |

*- significant at $p<0.05$ level

NS – Non Sigificant

Table 4.1 indicates the sustentative summary of chi-square analysis, which was used to bring out the association between the level of fatigue and their selected demographic variables in experimental group.

It reveals that, among the age group of 20 – 35 years, 6(20%) had moderate level of fatigue and none of them had mild and severe level of fatigue. Among 36-50 years,10(33%) experienced moderate level of fatigue and none had mild and severe level of fatigue.. Among 51-60 years,1(3%) had mild level and 13(44%) experienced moderate level of fatigue none of them had severe level of fatigue. The obtained chi square value was 1.49 which was statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to sex, among female 1(3%) experienced mild level of fatigue and 22(73%) were experienced moderate level of fatigue and none of them had severe level of fatigue. Among males, 7(24 %) experienced moderate level of fatigue none had mild and severe level of fatigue. The obtained chi square value was 0.31 which was statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to educational status, among primary education 5(17%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among secondary education 1(3%) experienced mild level and 6(20%) experienced moderate level of fatigue none had severe level of fatigue. Among higher secondary, 5(17%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among diploma, 8(26%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among degree or equivalent 5(17%) experienced moderate level of fatigue and none had mild and severe level of fatigue. The obtained chi-square value was 3.39, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to occupation, among government employed 6(20%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among private employee 1(3%) experienced mild level of fatigue and none had moderate and severe level of fatigue. Among self employed 9(30%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among unemployed 12(39%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among retired 2(7%) experienced moderate level of fatigue and none had mild and severe level of fatigue. The obtained chi-square value was 30.32, which is statistically significant at $p < 0.05$. Hence the stated hypothesis $H_2$ was accepted.

With regard to monthly income, among below RS.5000/-, 6(20%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Between RS.5001- 10000/-, 1(3%) experienced mild level and 10(33%) experienced moderate level of fatigue and none had severe level of fatigue. Among above RS.10000/-, 13(44%) experienced moderate level of fatigue and none had mild and severe level of fatigue. The obtained chi-square value was 1.79, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to duration of illness, among below 3 years 1(3%) experienced mild level and 3(10%) experienced moderate level of fatigue and none had severe level of fatigue. Among 3-5 years 10(34%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among above 5 years 16(53%) experienced moderate level of fatigue and none had mild and severe level of fatigue. The obtained chi-square value was 6.73, which is statistically significant at $p < 0.05$. Hence the stated hypothesis $H_2$ was accepted.

With regard to duration of dialysis, among below 3 hours none had mild, moderate and severe level of fatigue. Among 3-4 hours 25(84%) experienced moderate level of fatigue and none had mild and severe level of fatigue. Among above 4 hours 1 (3%) experienced mild level and 4(13%) experienced moderate level of fatigue and none had severe level of fatigue. The obtained chi-square value was 5.19, which is statistically significant at $p < 0.05$. Hence the stated hypothesis $H_2$ was accepted.

With regard to any associated illness, 1(3%) experienced mild and 5(17%) experienced moderate level of fatigue and none had severe level of fatigue. 24(80%) experienced moderate level of fatigue and none had mild and severe level of fatigue, those who are not having any associated illness. The obtained chi-square value was 4.13, which is statistically significant at $p < 0.05$. Hence the stated hypothesis $H_2$ was accepted.

It is inferred that there was a significant association between the level of fatigue among patients undergoing hemodialysis with their selected demographic variables such as occupation, duration of illness, duration of dialysis and any associated illness except age ,sex, education and monthly income. Hence the stated hypothesis $H_2$ was accepted for occupation, duration of illness, duration of dialysis and any associated illness. The stated hypothesis $H_2$ was rejected for age ,sex, education and monthly income.

Table: 4.2

Frequency, Percentage and $\chi^2$ Distribution of Post test level of Fatigue among Patients undergoing Hemodialysis with their Selected Demographic Variables in Control Group.

n=30

| S. No. | Demographic Variables | Level of Fatigue in Control group | | | | | | $\chi^2$ Value |
|---|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | Severe | | |
| | | f | % | f | % | f | % | |
| 1. | Age in years | | | | | | | |
| | a) 20-35 | 0 | 0 | 1 | 3 | 4 | 13 | $1.43^{NS}$ |
| | b) 36-50 | 0 | 0 | 0 | 0 | 7 | 24 | df=2 |
| | c) 51-60 | 0 | 0 | 3 | 10 | 15 | 50 | |
| 2. | Sex | | | | | | | |
| | a) Male | 0 | 0 | 3 | 10 | 10 | 33 | $1.88^{NS}$ |
| | b) Female | 0 | 0 | 1 | 3 | 16 | 54 | df=1 |
| 3. | Education | | | | | | | |
| | a) Primary | 0 | 0 | 1 | 3 | 4 | 13 | |
| | b) Secondary | 0 | 0 | 0 | 0 | 4 | 13 | $3.66^{NS}$ |
| | c) Higher secondary | 0 | 0 | 0 | 0 | 3 | 10 | df=4 |
| | d) Diploma | 0 | 0 | 3 | 10 | 10 | 34 | |
| | e) Degree / Equivalent | 0 | 0 | 0 | 0 | 5 | 17 | |
| 4. | Occupation | | | | | | | |
| | a) Government employee | 0 | 0 | 0 | 0 | 4 | 13 | $2.02^{NS}$ |
| | b) Private employee | 0 | 0 | 1 | 3 | 5 | 17 | df=4 |
| | c) Self employee | 0 | 0 | 2 | 7 | 8 | 27 | |
| | d) Unemployed | 0 | 0 | 1 | 3 | 4 | 13 | |
| | e) Retired | 0 | 0 | 0 | 0 | 5 | 17 | |

(Cont.,)

| S. No. | Demographic Variables | Level of Fatigue in Control group | | | | | | $\chi^2$ Value |
|---|---|---|---|---|---|---|---|---|
| | | Mild | | Moderate | | Severe | | |
| | | f | % | f | % | f | % | |
| 5. | Monthly income | | | | | | | |
| | a) Below Rs.5000/- | 0 | 0 | 0 | 0 | 7 | 23 | $4.65^{NS}$ |
| | b) Rs.50001 – 10000/- | 0 | 0 | 3 | 10 | 6 | 20 | df=2 |
| | c) Above Rs.10000/- | 0 | 0 | 1 | 3 | 13 | 44 | |
| 6. | Duration of illness | | | | | | | |
| | a) Below 3 years | 0 | 0 | 0 | 0 | 5 | 17 | $0.92^{NS}$ |
| | b) 3-5 years | 0 | 0 | 3 | 10 | 16 | 53 | df=2 |
| | c) Above 5 years | 0 | 0 | 1 | 3 | 5 | 17 | |
| 7. | Duration of dialysis | | | | | | | |
| | a) Below 3 hours | 0 | 0 | 1 | 3 | 0 | 0 | $7.17^{*}$ |
| | b) 3 – 4 hours | 0 | 0 | 3 | 10 | 22 | 74 | df=1 |
| | c) Above 4 hours | 0 | 0 | 0 | 0 | 4 | 13 | |
| 8. | Any associated illness | | | | | | | |
| | a) Yes | 0 | 0 | 1 | 3 | 12 | 40 | $0.63^{NS}$ |
| | b) No | 0 | 0 | 3 | 10 | 14 | 47 | df=1 |

* - Significant at $p < 0.05$ level

NS = Non Significant

Table 4.2 indicates the sustentative summary of chi-square analysis, which was used to bring out the association between the level of fatigue and their selected demographic variables in control group.

With regard to age, among 20 -35 years of age 1(3%) experienced moderate level and 4(13%) were experienced severe level of fatigue and none had mild level of fatigue. Among 36-50 years of age 7(24%) experienced severe level of fatigue and none had mild and moderate level of fatigue. Among 51-60 years, 3(10%) were moderate level and 15(50%) experienced severe level of fatigue and none had mild level of fatigue. The obtained chi square value was 1.43 which was statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to sex, 3(10%) were male experienced moderate level of fatigue and 10(33%) experienced severe level of fatigue and none had mild level of fatigue. Among females, 1(3%) experienced moderate level and 16(54%) experienced severe level of fatigue and none had mild level of fatigue. The obtained chi square value was 1.88 which was statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to educational status, among primary education 1(3%) were experienced moderate level and 4(13%) experienced severe level of fatigue and none had mild level of fatigue. Among secondary education 4(13%) experienced severe level of fatigue and none had mild and moderate level of fatigue. Among higher secondary, 3(10%) experienced severe level of fatigue and none had mild and moderate level of fatigue. Among diploma, 3(10%) experienced moderate level and 10(34%) experienced severe level of fatigue and none had mild level of fatigue. Among degree or equivalent 5(17%) experienced severe level of fatigue and

none had mild and moderate level of fatigue he obtained chi-square value was 3.66, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to occupation, among government employed 4(13%) experienced severe level of fatigue and none had mild and moderate level of fatigue. Among private employee 1(3%) experienced moderate level and 5(17%) experienced severe level of fatigue and none had mild level of fatigue. Among self employed 2(7%) experienced moderate level and 8(27%) experienced severe level of fatigue none had mild level of fatigue.. Among unemployed 1(3%) experienced moderate level and 4(13%) experienced severe level of fatigue none had mild level of fatigue.. Among retired 5(17%) experienced severe level of fatigue none had mild and moderate level of fatigue. The obtained chi-square value was 2.02, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to monthly income, among below RS.5000/-, 7(23%) experienced severe level of fatigue none had mild and moderate level of fatigue. Between RS.5001- 10000/-, 3(10%) experienced moderate level and 6(20%) experienced severe level of fatigue none had mild level of fatigue. Among above RS.10000/-, 1(3%) experienced moderate level and 13(44%) experienced severe level of fatigue none had mild level of fatigue. The obtained chi-square value was 4.65, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to duration of illness, among below 3 years 5(17%) experienced severe level of fatigue none had mild and moderate level of fatigue.. Among 3-5 years 3(10%) experienced moderate level and 16(53%) experienced severe level of fatigue none had mild level of fatigue.. Among above 5 years 1(3%) experienced moderate level and 5(17%) experienced severe level of

fatigue none had mild level of fatigue.. The obtained chi-square value was 0.92, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

With regard to duration of dialysis, among below 3 hours 1(3%) experienced moderate level of fatigue none had mild and severe level of fatigue.. Among 3-4 hours 3(10%) experienced moderate level and 22(74%) experienced severe level of fatigue none had mild level of fatigue. Among above 4 hours 4(13%) experienced severe level of fatigue none had mild and moderate level of fatigue. The obtained chi-square value was 7.17, which is statistically significant at $p < 0.05$. Hence the stated hypothesis $H_2$ was accepted.

With regard to any associated illness, 1(3%) experienced moderate and 12(40%) were experienced severe level of fatigue none had mild level of fatigue. 3(10%) experienced moderate level and 14(17%) experienced severe level of fatigue none had mild level of fatigue, those who are not having any associated illness. The obtained chi-square value was 0.63, which is statistically not significant. Hence the stated hypothesis $H_2$ was not accepted.

It is inferred that there was a significant association between the level of fatigue among patients undergoing hemodialysis with their duration of dialysis, except age, sex, education, occupation, duration of illness, monthly income and any associated illness. Hence the stated hypothesis $H_2$ was accepted for duration of dialysis. Hence the stated hypothesis $H_2$ was rejected for age, sex, education, occupation duration of illness monthly income and any associated illness.

# CHAPTER V

# DISCUSSION

The main aim of the study was to evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis. The study was conducted by using quasi experimental design with pretest and post test with control group. The present study was conducted in KG Hospital at Coimbatore. The sampling technique is non probability purposive sampling was used for this study. The total sample size was 60, among them 30 were in experimental group and 30 were in control group.

Modified Piper Fatigue Scale was used which consisted of 22 numerically scaled,0-10 items that measure four dimensions of subjective fatigue - the first dimension is behavioral / severity (6 items, 1-6), the second dimension is affective meaning (5 items,7-11), the third dimension is sensory (5 items, 12-16) and the fourth dimension is cognitive / mood (6 items, 17-22). The following 22 items were calculated into 4 sub scales / dimensional scores and the total maximum score was 220. to calculate the total fatigue score , the 22 items total score is 220 is together and divide by 22 in order to keep the score in the same numerical form is ‘0’ to ‘10’ scale.

The result of the study was analyzed by descriptive statistics ( mean ,standard deviation, frequency and percentage) and inferential statistics ( dependent ‘t’ test, independent ‘t’ test and chi - square ). The findings of the study was computed and arranged on the basis of the study objectives.

The first objective of the study was to assess the pre and post test level of fatigue among patients undergoing hemodialysis in experimental and control group.

In experimental group,2(7%) patients had moderate level of fatigue, 28(93%) patients had severe level of fatigue and none had mild level of fatigue during pre test. Whereas in the post test 1(3%) had mild level of fatigue and 29(97%) had moderate level of fatigue. In the control group, 8(27%) had moderate level of fatigue and 22(73%) had severe level of fatigue and none had mild level of fatigue during pre test. Whereas in post test, 4(13%) had moderate level of fatigue and 26(87%) had severe level of fatigue.

The findings of the study was supported by Julie Barrosso and Sharon Docherty (2013) who conducted a qualitative descriptive study on experience and self- management of fatigue among 120 patients undergoing hemodialysis. This study revealed that 90% of patients experienced fatigue from chronic renal failure and its treatment modalities, 60% of patients reported as fatigue from hemodialysis.

The second objective of the study was to evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis in experimental group.

In present study the results revealed that among the experimental group, the mean pretest score of fatigue was 7.6 with standard deviation 0.94, the mean post test score of fatigue was 4.83 with standard deviation 0.8 and the mean difference was 2.76. The obtained 't' value 3.75 was significant.

In the control group the mean pre test score of fatigue was 3.8 with standard deviation 1.36, the mean post test score of fatigue was 6.73 with standard deviation 0.96 and mean difference was 0.4. The obtained 't' value 0.18 was not significant.

In experimental group the mean post test score was 4.83 with standard deviation 0.8 and in control group the mean post test score was 6.73 with standard deviation 0.95. The mean difference was 0.15 and the obtained 't' value 10.01 was significant.

Hence, the stated hypothesis H1 was accepted. It infers that there is a significant difference between the mean pre test and post test level of fatigue among patients undergoing hemodialysis. It reveals that hot water foot bath is effective in reducing level of fatigue among patients undergoing hemodialysis.

The present study finding was supported by a Chih –Kang Chiang, (2011) who conducted a study to evaluate the effectiveness of hot water foot bath on fatigue among 60 patients undergoing hemodialysis by using Multi Dimensional Fatigue Inventory Scale. Patients in experimental group received hot water foot bath for 20 minutes duration for 3 days. Patients in control group received only routine nursing care. The result revealed that reduction in fatigue among patients in experimental group shows highly significant than in control group. This study concluded that hot water foot bath was effective in reducing level of fatigue among patients undergoing hemodialysis.

The finding was supported by Soumya Susan Sam (2013) who conducted a study on hot water foot bath on fatigue among patients undergoing hemodialysis by using Modified Piper Fatigue Scale. The feet were immersed in hot water at 40 to 42 degree Celsius for 15 minutes for seven consecutive days. The study revealed that hemodialysis related fatigue was reduced

significantly after the intervention of hot water foot bath. This study concluded that hot water foot bath was effective in reducing level of fatigue among patients undergoing hemodialysis.

The third objective of the study was to determine the association between post test level of fatigue among patients undergoing hemodialysis and their demographic variables in experimental and control group.

Chi – Square analysis revealed that in experimental group there was a significant association between post test level of fatigue and demographic variables such as occupation , duration of illness, duration of dialysis and any association of illness were significant at $p<0.05$ levels. In control group there was a significant association between level of fatigue among patients undergoing hemodialysis with their duration of dialysis.

# CHAPTER VI

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter deals with summary, conclusion, limitations and recommendations of the study. Further it includes implications for the nursing practice, nursing education, nursing administration and nursing research.

## Summary of the Study

The aim of the present study was to evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis in a selected hospital at Coimbatore.

## The objectives of the study were:

- To assess the pre and post test level of fatigue among patients undergoing hemodialysis in experimental and control group.
- To evaluate the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis in experimental group.
- To determine the association between post test level of fatigue among patients undergoing hemodialysis and their demographic variables in experimental and control group.

A quasi experimental pre test and post test design was chosen for this study. Non probability purposive sampling technique was used for this study. Subjects were selected based upon the inclusion and exclusion criteria. 60 subjects were selected for the study. Purposively 30 subjects were assigned to the experimental group and 30 subjects were assigned to the control group.

The tool used to collect the data consisted of two parts, Part 1 consisted of demographic variables with age, sex, education, occupation, monthly income, duration of illness, duration of dialysis and any associated illness. Part II consisted of Modified Piper Fatigue Scale with 22 items to assess the level of fatigue among patients undergoing hemodialysis.

Content validity was obtained from 7 experts among them 2 nephrologists and 5 nursing experts. Reliability of the tool was calculated by using test-retest method(r =0.75). Data collection was done for 6 weeks. Samples were selected based upon the inclusion and exclusion criteria. Pretest was done by using modified Piper fatigue scale on day one. Hot water foot bath was given thrice a week for 15 minutes after dialysis for 5 alternative days. The post test was done on day 10.

Collected data was analyzed by both descriptive statistics (mean, standard deviation, frequency and percentage) and inferential statistics (dependent and independent 't' test and chi-square) and results were calculated.

## Major findings of the Study

The major findings of the study were

- With regard to the level of fatigue among patients undergoing hemodialysis, most of them were under moderate and severe level of fatigue. On post test assessment it revealed that the subjects showed reduction in the level of fatigue from severe to moderate and moderate to mild level of fatigue.

- With regard to effectiveness of hot water foot bath among patients undergoing hemodialysis , the mean post test level of fatigue was less than the mean pretest level of fatigue. The obtained 't' value was significant at $p<0.05$ level.

- With regard to the association between the level of fatigue and selected demographic variables in experimental and control group, the study findings have revealed that in the experimental group there was a significant association between level of fatigue and occupation, duration of illness, duration of dialysis and any associated illness. Where as in the control group there was a significant association between level of fatigue and the duration of dialysis.

## Conclusion

The main conclusion of the present study states that hot water foot bath is effective in reducing fatigue among patients undergoing hemodialysis. After the intervention there had been a significant reduction in level of fatigue. The selected subjects become familiar and found themselves comfortable and also expressed satisfaction with the hot water foot bath therapy.

## Implications of the Study

Nursing implication includes specific information for Nursing Practice, Nursing Education, Nursing Administration and Nursing Research. Nursing implications for this present study are:

### Nursing Practice

- Hot water foot bath for fatigue management can be included as routine nursing procedure to provide care for patients undergoing hemodialysis.

- Hot water foot bath can be considered as complimentary therapy and can be imparted to nursing students to improve skill in providing care and update their knowledge on evidence based practice.
- Regular health education program can be conducted in the dialysis units by nursing personnel to help the patients undergoing hemodialysis in reducing level of fatigue.
- Nurses play an important role in primary health care by early detection and prevention of fatigue. Hot water foot bath can used as a means of health promotion on level of fatigue among patients undergoing hemodialysis receiving dialysis treatment.

## Nursing Education

- Nursing studnets could learn the assessment of fatigue and provide hot water foot bath for reducing fatigue among patients undergoing hemodialysis as an independent nursing intervention.
- Nursing students could be taught about the hot water foot bath that they can help patients undergoing hemodialysis to overcome fatigue.
- Adequate practical training can be given to the students regarding hot water foot bath in reduction of fatigue and can be incorporated in nursing curriculum.

## Nursing Administration

- The nurse administrators can initiate hot water foot bath practices to reduce the fatigue through developmental programme like in-service education and continuing nursing education programme.
- Nurse administrators can prepare written policies and protocols regarding management of fatigue among patients undergoing haemodialysis.

## Nursing Research

- The study findings encourage, further research studies on the effectiveness of hot water foot bath on level of fatigue among patients undergoing haemodialysis.
- The study findings can be disseminated through conferences, seminars publication in professional, national and international journals and worldwide web.
- The study finding can help to expand the scientific body of professional knowledge upon which further researches can be conducted.

## Recommendations

- The study can be replicated on a large sample size.
- A similar study can be conducted in different setting.
- A similar study can be done with other intervention to reduce fatigue.
- A comparative study can be done to assess the effectiveness of hot water foot bath on level of fatigue among patients undergoing hemodialysis in combination with other complementary therapies.
- A longitudinal study can be undertaken to see the long term effect of hot water foot bath, in reducing fatigue at various time intervals such as at 6 months, 1 year and 2 years.
- A true experimental study can be conducted among patients undergoing hemodialysis and with other chronic illness.

# REFERENCES

## BOOK REFERENCES


- Ann Marriner Tomey, Martha Raile Alligood, (2006)., "NURSING THEORISTS AND THEIR WORK"., 6th ed., Missouri: Mosby Publication.
- Bare, G. Brenda, Smeltzer, C. Suzanna. (2005)., "BRUNNER AND SUDDARTHS TEXT BOOK OF MEDICAL SURGICAL NURSING"., 10th ed., Philadelphia: Lippincott publication.
- Basavanthappa, B.T. (2003)., "NURSING RESEARCH"., 1st ed., new Delhi: Jaypee brothers medical publishers (pvt) Ltd.
- Black. M. Joyce and Jane Hokanson Hawks, (2001)., "TEXT BOOK OF MEDICAL SURGICAL NURSING"., W.B Saunders Company publication.
- Dorothy. et.al, (1995)., "FUNDAMENTALS OF NURSING RESEARCH"., 2nd ed., USA: Jones and Bartlett publication.
- Gupta, G.S Kappor, (1990)., "FUNDAMENTALS OF MATHEMATICAL STATISTICS"., New Delhi: Sultan Chand publications.
- Kothari, C.R, (2004)., "RESEARCH METHODOLOGY METHODS AND TECHNIQUES"., 2nd ed., New Delhi : New age international (p) Ltd publishers.
- Lewis Sharon, M. Darkson Shannon Idolia, C. and Heitkemper, M.M. (2007)., "MEDICAL AND SURGICAL NURSING"., 6th ed., Missouri: Mosby publication.
- Mahajan, B.K, (1991)., "METHODS IN BIOSTATISTICS"., 5th ed., New Delhi: Jaypee Brothers Medical Publishers.
- Nancy Burns, Susan, K. Groov, (2005)., "THE PRACTICE OF NURSING RESEARCH"., 5th ed., Missouri: Elsevier Saunders publications.
- Nicola Thomas, (2002)., "RENAL NURSING"., 2nd ed., Elsevier Publication.

- Polit and Beck, (2004)., "NURSING RESEARCH PRINCIPLES AND METHODS"., 7th ed., Philadelphia: Lippincott Williams and Wikins company.
- Polit, F. Denise Hungler, (2001)., "NURSING RESEARCH PRINCIPLES AND METHODS"., 5th ed., Philadelphia: J.B. Lippincott publication.
- Sundar Rao, P.S.S. and Richard, (2004)., "AN INTRODUCTION TO BIOSTATISTICS"., 3rd ed., New Delhi: Prentice-Hall of India Private Ltd.
- Wesley, L. Rubby, (1992)., "NURSING THEORIES AND MODELS"., 2ed ed., Pennsylvania: Spring House Publication.
- Woo Keng Thye. (2010). CLINICAL NEPHROLOGY. (3rd ed) Singapore: World Scientific.

## JOURNAL REFERENCES


- Priya. B., (2016)., "Effectiveness of foot bath on fatigue among patients with chronic renal failure undergoing hemodialysis"., International Journal of Medicine., Vol. 6., pp.31-36.
- Teruel. J.L., (2006)., "Temperature of Dialysis Bath and Hemodialysis Tolerance"., Nightingale Nursing Times., Vol., 26., pp. 461-468.
- Jose Amala Anilda.S., (2015)., "Effectiveness of Hot Water foot bath on level of fatigue among elderly patient"., International Journal of Science and Research., Vol., 4., Issue 8. Pp. 574-578.
- Sangeeta Pilla., Malti Lodhi., (2013)., "Effectiveness of Planned Teaching Programme on Knowledge regarding Febricidal Measures in Children among Mother's Jabalpur District"., International Journal of Science and Research., Vol 4., Issue 6., pp. 676-679.
- R. Selvakumari., (2011)., "Hot Water Foot Bath Therapy for Patients with Fever"., Nightingale Nursing Times., Vol. 6, (Sup. 12) 24-25.
- Chithra., (2008)., "Complementary Medicine and Alternative Therapies"., Indian Journal of Holistic Nursing., 2(4)., 4.5.
- Paul L. Kimmel. (2004)., "Psychosocial Factors in Adult End Stage Renal Disease Patients". American Journal of Kidney Disease., Volume 35., Issue 4, Supplement, April 2000. Page No. S132-S140.
- Elsever Science, (1997). "Prevalence Of Chronic Renal Failure" American Journal of Kidney Disease. pp. 540-553.
- Murtagh FE, (2007). "The Prevalence Of Symptoms In Chronic Renal Failure". American journal of chronic kidney disease. 14(1) : 82 – 89.
- Sangamesh Nidagundi, (2007). "Research Design"., Nightingale Nursing Times. V(7) : 65 – 68.

- Neelam, (2007) "Sampling choosing Participants", Nightingale Nursing Times. II (2): 60-61
- Murugesan Ram Prabhar. (2008). "Epidemic of chronic kidney disease in india". Journal of Indian Medicine. Vol 19, Issue 5. Page no. 15.
- Jhamb M, (2008). "Fatigue In patients Receiving Maintenance Dialysis" American Journal Of Kidney Disease.
- Paul L. Kimmel. (2004). "Psychosocial factors in adult chronic renal failure patients". American Journal Of Kidney Diseases. Volume 35, Issue 4, Supplement, April 2000. Page no. S132-S140
- Rajapurkar.M, Dabhi M. (2007). "Burden of disease –prevalence and incidence of renal disease in india". Clinical Nephropathy. 2010. 74:9-12.

## NET REFERENCES


- "Functional Assessment of Chronic Illness Therapy - The Fatigue Scale.", www.facit.org.
- "Hot bath for the Treatment of Chronic Renal Failure"., www.tandfonline.com/loi/irnf20
- "The Experience and Self Management of Fatigue in Hemodialysis Patients"., www.nephronursesjournal.com
- http://ncbi.nih.gov/pmc/articles/2829836/apr 2004
- http://ww.springerlink.com/content/qxkasdfuyqwe
- "Fatigue in advanced kidney disease"., http://www.kidney-international.org
- "Educational Intervention on Fatigue in Hemodialysis Patients"., www.iosrjournals.org
- Drugs info.org, www.pubmed.pmid: 19370947. Dated on 18-3-2008.
- "Effect of Hemodialysis in Chronic Renal Failure Patients" . www.emedicine. medscape.com/article/777957. Dated on 20-09-2015
- "Effectiveness of Dialysis among Chronic Renal Failure Patients", www .pubmed pmid: 12366488 Dated on 16-01-2006.
- "Chronic Renal Failure and Renal Replacement Therapies", www.gildasclub.org. Dated on 17-12-2005.
- "Encouraging trends". American society of Nephrology. www.medical newstoday. com/articles/79364.php. Dated on 18-3-2004
- "Epidemiology of Chronic Renal Failure", http://www/current stage.com/end-stage-renal-disease/intro.htm. Dated on 19-6-2004.
- "Holistic health", http://www.health.com/holistic.html. Dated on 22-5-2009.
- Kidney info.org.www.wikipedia.org/kidney Dated on 10-10-2009.
- Kidney disease http://www.netwellness.org/healthytopics/kidney/kidney disease. efm. Dated on 22-5-2009.

- "Management of Chronic Renal Failure".www.hcvadvocate.org/ newsRev/2008/newsRev.279.html Dated on 25-08-2008
- NephrologyResearchhttp://www.cureresearch.com/e/end_stage_renal_diseae/ entro.htm. Dated on 18-03-2007.
- "Prevalence of renal disease". http://www.ndt.oxfordjournals.org/cgi /full/23/12.Dated on 19-04-2007.
- "Trends of End Stage Renal Disease", http://www.usrds.org/adr.htm. Dated on 13-8-2007.
- Cheng YY, Wong YF, Chu BY, Lam WO, Ho YW., (2003) Rehabilitating a Dialysis patient. Retrieved on (August 22, 2013) from http://www.pdiconnect.com/content/23/Supplement 2/S81.long.
- Goovaerts T, Jadoul M, Goffin E., (2005) Influence of a pre-dialysis education programme (PDEP) on the mode of renal replacement of therapy. Retrieved on (April 22,2013) from http://ndt.oxfordjournals. org/content/20/9/1842.long

APPENDIX A


# ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.
Cell : 94421 75641, 98435 24219

Phone : 0422 - 6562705, 2675641, 2672705
Fax : 0422 - 2676016
Email : ceandct@gmail.com
Website : www.annaimeenakshi.in


*Ref. No.*

*Date : .....*

**Requisition for Content Validity**

From

Mrs. Rekha .R.,
II - Year M.Sc.,(N)
Annai Meenakshi College of Nursing,
Coimbatore – 21.

Through
The Principal,
Annai Meenakshi College of Nursing,
Coimbatore – 21.

To

Respected Sir/Madam,

Sub: Requisition for expert opinion and suggestion for content validity of the tool – Reg.

---

I am a student of M.Sc., Nursing II year in Annai Meenakshi College of Nursing, Coimbatore, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of the M.Sc., Nursing programme, I am conducting a research titled as "**A Study to Evaluate the Effectiveness of hot foot both on level of fatigue among patients undergoing Hemodialysis in a selected hospital at Coimatore**". I am hereby enclosing the following:

1. Statement and objectives of the study
2. Hypothesis
3. Methodology
4. Tool
5. Intervention
6. Content Validity certificate.

Herewith I am submitting the developed tool for content validity and for your opinion and possible suggestion. I will be grateful to you and request you to return the same to the undersigned at the earliest possible.

Thanking you,

Yours faithfully,

Forwarded

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

Place: Coimbatore
Date:

APPENDIX B

# ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.
Cell : 94421 75641, 98435 24219

Phone : 0422 - 6562705, 2675641, 267270
Fax : 0422 - 2676016
Email : ceandct@gmail.com
Website : www.annaimeenakshi.in

*Ref. No.*

*Date : .....*

## Certificate of Validation

This is to certify that the tools developed by **Mrs. Rekha.R.**, M.Sc (N) II - Year student of Annai Meenakshi College of Nursing, Coimbatore, Tamil Nadu (Affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the main study for dissertation entitled **"A study to Evaluate the Effectiveness of hot foot bath on level of fatigue among patients undergoing Hemodialysis in a selected hospital at Coimbatore".**

Place: Coimbatore

Signature

Date:

Name and Designation

# APPENDIX – C

## Name List of Experts who validated the Tool

Dr. G. VASANTH MD.,

Consultant - Nephrologist,

PSG Hospital,

Coimbatore.

Dr. R. ARUL , MD.,DM., (Nephro),

Consultant Nephrologist,

NG Hospital Pvt. Ltd.,

Singanallur, Coimbatore.

Dr. ILANGOVAN VEERAPPAN, MD.,DM.,

Cheif Nephrologist,

KG Hospital,

Coimbatore.

Dr. MADHUSUDHAN, MBBS., MD., DM.,

Consultant – Nephrologist,

PSG Hospital,

Coimbatore.

V. PRIYADHARSHINI,
Associate Professor,
KG College of Nursing,
Coimbatore.

A. SHANTHI PRIYA
Professor, HOD / Medical Surgical Nursing Department,
KG College of Nursing,
Coimbatore.

MR. VINODH KUMAR .A.
Associate Professor,
KG College of Nursing,
Coimbatore.

MR. RUBIN ANTONY,
Assistant Professor,
Annai Meenakshi College of Nursing,
Coimbatore.

MRS. BABEE,
Assistant Professor,
Annai Meenakshi College of Nursing,
Coimbatore.

APPENDIX D

# ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.
Cell : 94421 75641, 98435 24219

Phone : 0422 - 6562705, 2675641, 267270
Fax : 0422 - 2676016
Email : ceandct@gmail.com
Website : www.annaimeenakshi.in

*Ref. No.*

*Date* December 15, 2016

From
Mrs. Rekha .R.,
II - Year M.Sc.,(N)
Annai Meenakshi College of Nursing,
Coimbatore – 21.

To

Through: The Principal of Annai Meenakshi College of Nursing,

Respected Sir/Madam,

Sub: Research proposal – Data collection – Permission – Request – Regarding.

---

I am a student of M.Sc., Nursing II year of Annai Meenakshi College of Nursing, Coimbatore, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of the M.Sc., Nursing programme, I am conducting a **A Study to Evaluate the Effectiveness of hot foot both on level of fatigue among patients undergoing Hemodialysis in a selected hospital at Coimatore".** I would like to carry out this study in your esteemed institution. Hence I request you to kindly permit me to collect data in your hospital during the period from 09.01.2017 to 04.02.2017.

Thanking you,

Yours faithfully,

Dr. R. ARUL, MD., DM.(Nephro).,
Reg. No: 62412
Consultant Nephrologist,
N. G. HOSPITAL PVT. LTD.,
577, Near Singanallur Signal,
Trichy Road, Coimbatore- 641 005.

Forwarded
15.12.16
PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

Approved,

APPENDIX D

# ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.


Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.
Cell : 94421 75641, 98435 24219

Phone : 0422 - 6562705, 2675641, 2672705,
Fax : 0422 - 2676016
Email : ceandct@gmail.com
Website : www.annaimeenakshi.in


Ref. No.

Date : 28/2/17

From

Mrs. Rekha .R.,
II - Year M.Sc.,(N)
Annai Meenakshi College of Nursing,
Coimbatore – 21.

To

The chairman
KG Hospital
Coimbatore

To
Dr. G.B
Sir,
- She wants to collect data from Dialysis patients to assess level hot water foot bath & fatigue patients.
- pl. decide

PRABUKUMAR. R
CEO - HR & QUALITY
K.G HOSPITAL
COIMBATORE - 641 018

Through: The Principal of Annai Meenakshi College of Nursing

Respected Sir/Madam,

Sub: Research proposal – Data collection – Permission – Request – Regarding.

---

I am a student of M.Sc., Nursing II year of Annai Meenakshi College of Nursing, Coimbatore, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of the M.Sc., Nursing programme, I am conducting a **A Study to Evaluate the Effectiveness of hot water foot bath on level of fatigue among patients undergoing Hemodialysis in a selected hospital at Coimbatore".** I would like to carry out this study in your esteemed institution. Hence I request you to kindly permit me to collect data in your hospital.

Thanking you,

Yours faithfully,

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

Dr. ILANGOVAN VEERAPPAN
MD.,DM(Nephro)
Chief Nephrologist
Reg. No: 69827
K.G. HOSPITAL

# APPENDIX E

## PART A

## Structured Interview Questionnaire (English)

## Demographic Variables Of Patients Undergoing Hemodialysis

Sample No.: ☐

Date :

NOTE: Please kindly tick the (√ ) suitable answers.

1. Age (In Years)
   a) 20-35 ( )
   b) 36-50 ( )
   c) 51- 60 ( )

2. Gender
   a) Male ( )
   b) Female ( )

3. Education
   a) Primary ( )
   b) Secondary ( )
   c) Higher Secondary ( )
   d) Diploma ( )
   e) Degree/Equivalent ( )

4. Occupation
   a) Government Employee ( )
   b) Private Employee ( )
   c) Self Employee ( )
   d) Unemployed ( )
   e) Retired. ( )

5. Monthly Income

a) Below RS.5000/. ( )

b) RS.5000-10000/. ( )

c) Above 10000/.

6 Duration of Illness

a) Below 3 Years ( )

b) 3-5 Years ( )

c) Above 5 Years ( )

7. Duration of Dialysis

a) Below 2 Hour ( )

b) 2-3 Hour ( )

c) Above 3 Hour ( )

8. Any associated Illness

a) Yes ( )

b) No ( )

If any, Specify ……..

PART B

# MODIFIED PIPER FATIGUE SCALE

Directions: Many individuals can experience a sense of unusual or excessive tiredness whenever they become ill, receive treatment, or recover from their illness/treatment. This unusual sense of tiredness is not usually relieved by either a good night's sleep or by rest. Some call this symptom "fatigue" to distinguish it from the usual sense of tiredness.

For each of the following questions, please fill in the space provided for that response that best describes the fatigue you are experiencing now or for today. Please make every effort to answer each question to the best of your ability. If you are not experiencing fatigue now or for today, fill in the circle indicating "0" for your response. Thank you very much!

1. To what degree is the fatigue you are feeling now causing you distress?

No Distress A Great Deal

1 2 3 4 5 6 7 8 9 10

2. To what degree is the fatigue you are feeling now interfering with your ability to complete your work or school activities?

None A Great Deal

1 2 3 4 5 6 7 8 9 10

3. To what degree is the fatigue you are feeling now interfering with your ability to socialize with your friends?

None A Great Deal

1 2 3 4 5 6 7 8 9 10

4. To what degree is the fatigue you are feeling now interfering with your ability to engage in sexual activity?

None A Great Deal

1 2 3 4 5 6 7 8 9 10

5. Overall, how much is the fatigue which you are now experiencing interfering with your ability to engage in the kind of activities you enjoy doing?

None A Great Deal

1 2 3 4 5 6 7 8 9 10

6. How would you describe the degree of intensity or severity of the fatigue which you are experiencing now?

Mild Severe

1 2 3 4 5 6 7 8 9 10

7. To what degree would you describe the fatigue which you are experiencing now as being?

Pleasant Unpleasant

1 2 3 4 5 6 7 8 9 10

8. To what degree would you describe the fatigue which you are experiencing now as being?

Agreeable Disagreeable

1 2 3 4 5 6 7 8 9 10

9. To what degree would you describe the fatigue which you are experiencing now as being?

Protective Destructive

1 2 3 4 5 6 7 8 9 10

10. To what degree would you describe the fatigue which you are experiencing now as being?

Positive Negative

1 2 3 4 5 6 7 8 9 10

11. To what degree would you describe the fatigue which you are experiencing now as being:

Normal Abnormal

1 2 3 4 5 6 7 8 9 10

12. To what degree are you now feeling:

Strong Weak

1 2 3 4 5 6 7 8 9 10

13. To what degree are you now feeling:

Awake Sleepy

1 2 3 4 5 6 7 8 9 10

14. To what degree are you now feeling:

Lively Listless

1 2 3 4 5 6 7 8 9 10

15. To what degree are you now feeling:

Refreshed Tired

1 2 3 4 5 6 7 8 9 10

16. To what degree are you now feeling:

Energetic Unenergetic

1 2 3 4 5 6 7 8 9 10

17. To what degree are you now feeling:

Patient Impatient

1 2 3 4 5 6 7 8 9 10

18. To what degree are you now feeling:

Relaxed A Great Deal

1 2 3 4 5 6 7 8 9 10

19. To what degree are you now feeling:

Exhilarated Depressed

1 2 3 4 5 6 7 8 9 10

20. To what degree are you now feeling:

Able to Concentrate Unable to Concentrate

1 2 3 4 5 6 7 8 9 10

21. To what degree are you now feeling:

Able to Remember Unable to Remember

1 2 3 4 5 6 7 8 9 10

22. To what degree are you now feeling:

Able to Think Clearly Unable to Think Clearly

1 2 3 4 5 6 7 8 9 10

# gF½ M

## kh¦¿aik¡f¥g£l ig¥g® nrh®î Ãiy f©l¿í« msînfh±

tz¡f«. nufh. M® M»a eh¬/ m¬id Ûdh£¼ brÉÈa® f±YhÇÆ± ,u©lh« M©L KJfiy brÉÈa® go¥ò go¤J tU»nw¬. eh¬ ënkhlahÈìµ nrh®îÃiy g¦¿ M-î el¤½ tU»nw¬. ,j¦F/ Ú§f´ nf´ÉfS¡F ÉilaË¤J M-it Ko¡f x¤JiH¡FkhW nt©L»nw¬. ,ªj M-î f±É¡fhf k£Lnk. c§f´ g½±f´ ¼w¥ghfî« e«¾¡ifílD« ghJfh¡f¥gL« v¬W cW½aË¡»nw¬.

1. Ú§f´ nrh®îÃiyia milí« nghJ vªj msî kd¡ftiyia milå®f´>

   kd¡ftiy ,±iy m½f k½¥bg©

   | | | | | | | | | | |
   |---|---|---|---|---|---|---|---|---|---|
   | | | | | | | | | | |
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

2. Ú§f´ nrh®îÃiyia milí«nghJ c§fsh± ntiyia br-a Koíkh> (g´Ëntiy)

   x¬WÄ±iy m½f k½¥bg©

   | | | | | | | | | | |
   |---|---|---|---|---|---|---|---|---|---|
   | | | | | | | | | | |
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

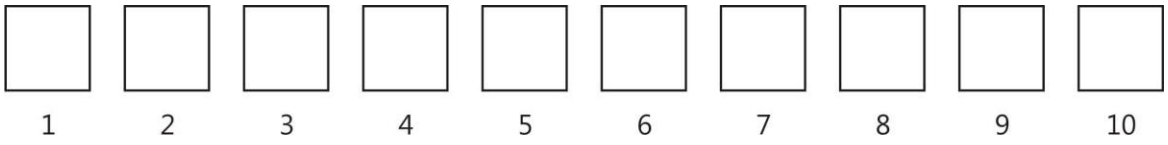
3. c§fsh± nrh®îÃiyÆ± ,U¡F«nghJ e©g®fSl¬ ngr Koíkh>

   x¬WÄ±iy m½f k½¥bg©

   | | | | | | | | | | |
   |---|---|---|---|---|---|---|---|---|---|
   | | | | | | | | | | |
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

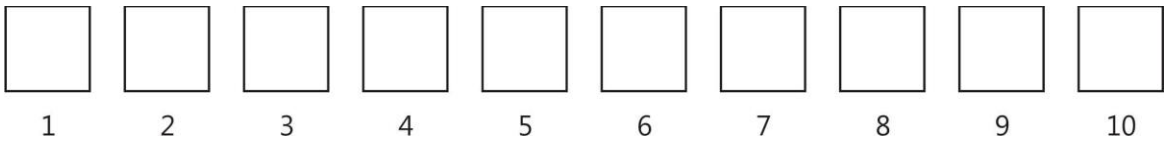
4. Ú§f´ nrh®îÃiyÆ± ,U¡F«nghJ c§fsh± cl± cwî it¤J¡bfh´s Koíkh>

   x¬WÄ±iy m½f k½¥bg©



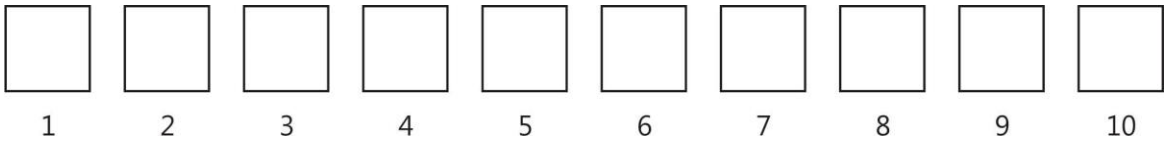

5. bkh¤j¤½± Ú§f´ k»³¢¼ahf xU ntiyia br-í«nghJ v²tsî nrh®îj¬ik milå®f´>

x¬WÄ±iy m½f k½¥bg©



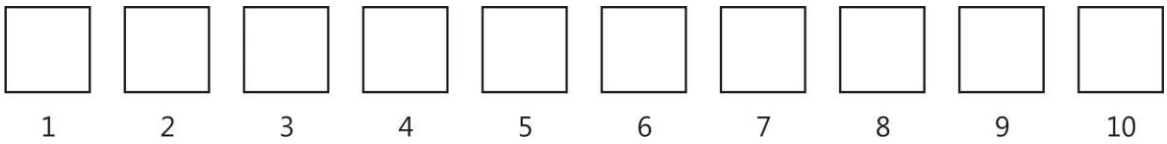

6. Ú§f´ brh±Y§f´ vªj kh½Çahd nrh®î j¬ikia Ú§f´ milª½Uj»Ö®f´>

Fiwî m½f«



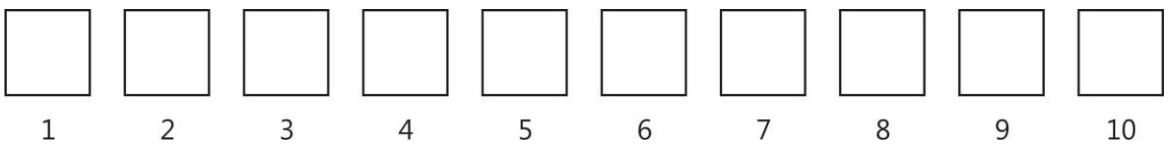

7. nrh®îj¬ik Mu«¾¡F«nghJ vªj kh½Ç Mu«¾¡F«>

V¦Wibfh´s¤jifJ V¦Wibfh´s¤jfhjJ



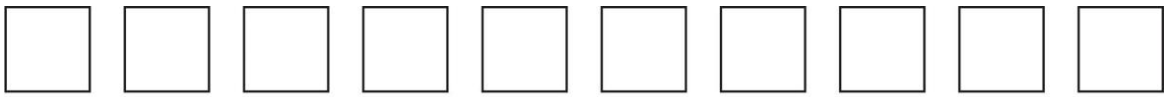

8. nrh®îj¬ik Mu«¾¡F«nghJ vªj kh½Ç Mu«¾¡F«>

cfªjJ cfªjj±y



9. nrh®îj¬ik Mu«¾¡F«nghJ vªj kh½Ç Mu«¾¡F«>

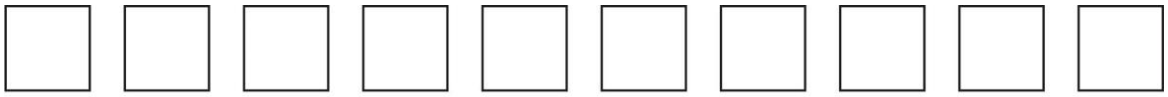
ghJfh¥ghd ghJfh¥g¦w



1 2 3 4 5 6 7 8 9 10

10. nrh®îj¬ik Mu«¾¡F«nghJ vªj kh½Ç Mu«¾¡F«>

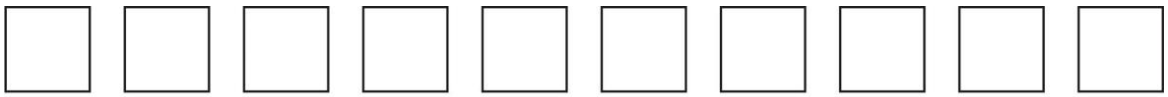
Ã¢rakhd (cW½ahd) Ã¢rak¦w (cW½a¦w)



1 2 3 4 5 6 7 8 9 10

11. nrh®îj¬ik Mu«¾¡F«nghJ vªj kh½Ç Mu«¾¡F«>

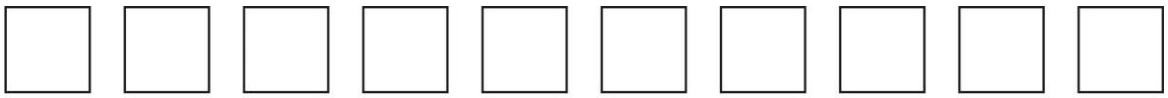
,a±ghdÃiy ,a±g¦wÃiy



1 2 3 4 5 6 7 8 9 10

12. vªj kh½Çahd msî nrh®it cz®å®f´>

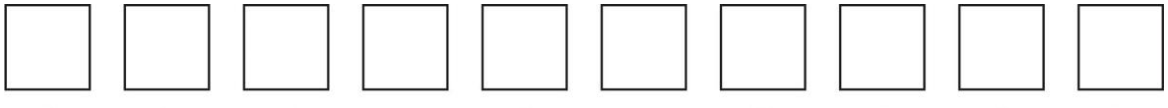
tYîila tYt¦w



1 2 3 4 5 6 7 8 9 10

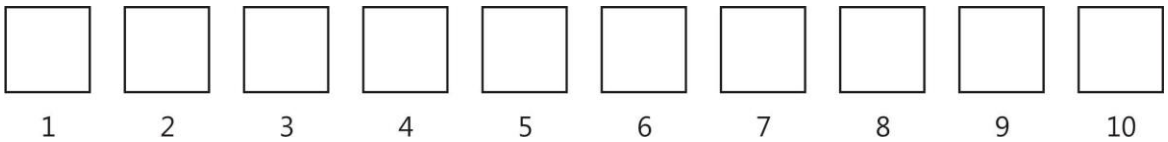
13. vªj kh½Çahd msî nrh®it cz®å®f´>

Jh¡f¤½ÈUªJ vG«ò«nghJ Jh¡f¤½±



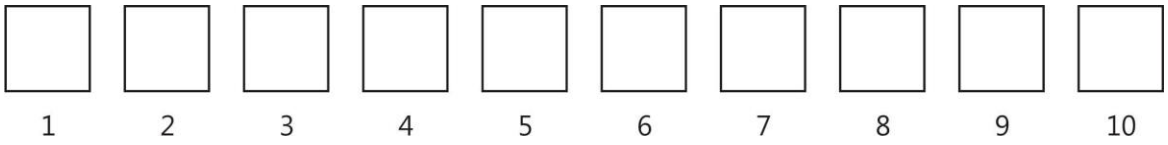

14. vªj kh½Çahd msî nrh®it cz®å®f´>

c©ikahd (cÆW´s) c©ika¦w (cÆu¦w)



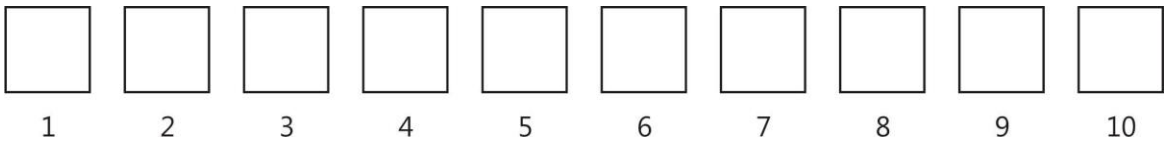

15. vªj kh½Çahd msî nrh®it cz®å®f´>

ò¤Jz®¢¼ nrh®î



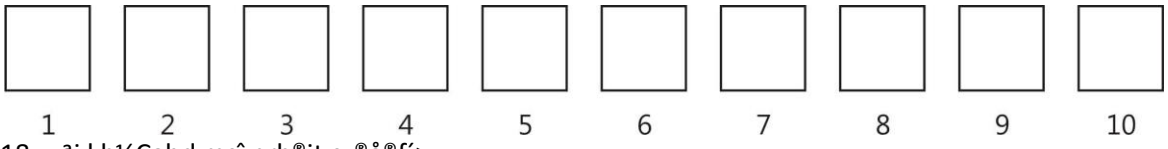

16. vªj kh½Çahd msî nrh®it cz®å®f´>

Mnuh¡»akhd Mnuh¡»ak¦w



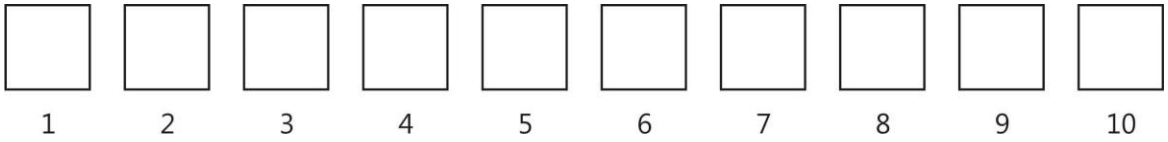

17. vªj kh½Çahd msî nrh®it cz®å®f´>

nehahËah neha¦wtuh



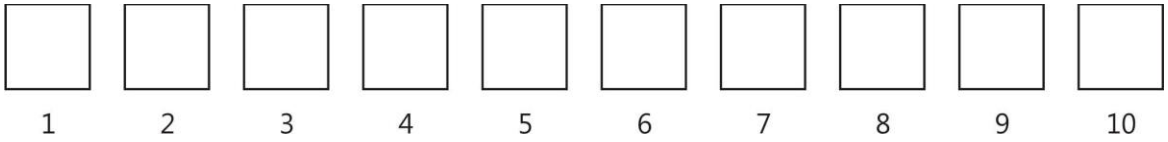

18. vªj kh½Çahd msî nrh®it cz®å®f´>

X-îÃiy ca®ªjÃiy



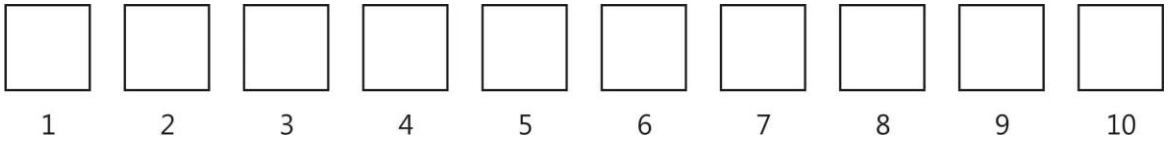

19. vªj kh½Çahd msî nrh®it cz®å®f´>

k»³¢¼ahd k»³¢¼a¦w



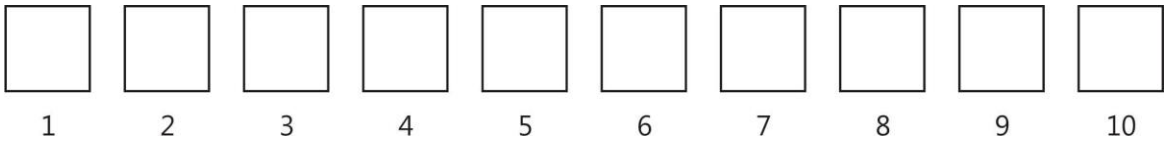

20. vªj kh½Çahd msî nrh®it cz®å®f´>

xUKf¥gL¤jKoj± xUKf¥gL¤j ,ayhik



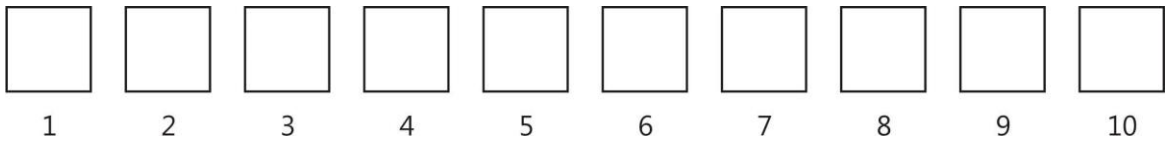

21. vªj kh½Çahd msî nrh®it cz®å®f´>

c§fsh± ¨hgf¥gL¤j Koíkh> ¨hgf¥gL¤j Koahik




22. vªj kh½Çahd msî nrh®it cz®å®f´>

c§fsh± bjËthf ngr Koíkh> bjËthf nahrid ,±iy




# APPENDIX E

## Letter seeking consent of subjects for participants in the Study

Respected Sir/Madam,

I am Mrs. Rekha. R, I am doing M.Sc (N) II year in Annai Meenakshi College of Nursing. I am doing a research on “A Study to Evaluate the Effectiveness of Hot water foot bath on level of fatigue among patients undergoing hemodialysis in a selected hospital at Coimbatore”. I request your cooperation to complete my research. I assure you that you won’t get any harm due to my research.

I am Mr. /Mrs. ----------. I heard about the effectiveness of Hot water foot bath on level of fatigue among patients undergoing hemodialysis from Mrs. Rekha. R. She explained me about the benefits of this intervention. I agree with this intervention of hot water foot bath and this study project whole heartedly.

Place: Yours Sincerely,

Date:

# APPENDIX F

## gF½ m

¾¬tUtdt¦iw e¬whf go¤J rÇahd ÉilÆ± (√) F¿Ælî«.

kh½Ç v© :

nj½ :

1. taJ (tUl¤½±)

   m) 20?35 ( )

   M) 36?50 ( )

   ,) 51?60 ( )

2. ghÈd«

   m) M© ( )

   M) bg© ( )

3. f±É¤jF½

   m) go¥g¿É±yhjt® ( )

   M) Mu«gÃiy¡ f±É ( )

   ,) ca®Ãiy¡ f±É ( )

   <) nk±Ãiy¡ f±É ( )

   c) g£l¥go¥ò / mj¦F Ãfuhd go¥ò ( )

4. bjhÊ± tif

   m) muR ntiy ( )

   M) jÅah® ntiy ( )

   ,) RabjhÊ± br-gt® ( )

   <) ntiyÆ±yhjt® ( )

   c) X-î bg¦wt® ( )

5. khj tUkhd«

   m) Ž.5000/-¡F« Fiwthf ( )

   M) Ž.5001/- ? Ž.10000/- ( )

   ,) Ž.10/000 ¡F«nk± ( )

6. neh- fhy msî

   m) 3 M©LfS¡F Fiwthf ( )

   M) 3?5 M©Lf´ ( )

   ,) 5 M©LfS¡F nk± ( )

7. lahÈÌµ fhy«

   m) 3 kÂ neu¤½¦Fi ÑnH ( )

   M) 3 ½ - 4 kÂneu¤½¦F´ ( )

   ,) 4 kÂneu¤½¦F nk± ( )

8. ntW ¼y bjhl®òila neh-f´ c©lh>

   m) M« ( )

   M) ,±iy ( )

M« v¬wh± ¼»çiríl¬ F¿¥¾Lf .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..

# APPENDIX F

## x¥òj± got«

k½¥¾¦FÇnahnu/

tz¡f«. nufh. M®/ v¬w eh¬ m¬id Ûdh£¼ brÉÈa® f±YhÇÆ± KJÃiy nk¦go¥ò ,u©lh« M©L go¤J tU»nw¬. eh¬ ënkhilahÈÌµ nrh®îÃiy Fiw¤j± g¦¿ Muh-¢¼ br-aî´ns¬. ,j¦fhf eh¬ j§fsJ KG x¤JiH¥ig nf£L¡bfh´»nw¬. nkY« ,jdh± j§fS¡F vªj xU gh½¥ò« V¦glhJ v¬gij bjÇÉ¤J¡ bfh´»nw¬.

½U. / ½Uk½. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. v¬»w eh¬/ nufh. M®/ mt®fËlÄUªJ ënkhilahÈÌµ nrh®îÃiyia Fiw¤j± v¬gij g¦¿í« mj¬ ga¬f´ g¦¿í« bjÇªJbfh©nl¬. ,jdh± eh¬ KG kdJl¬ ,ªj Muh-¢¼Æ± g§Fbgw x¥òj± mË¡»nw¬.

,l« : ifbah¥g«

eh´ :

# *APPENDIX G*

## *SCORING PROCEDURE*

## *PIPER FATIGUE SCALE (PFS) SURVEY RESULTS*

## PFS Current Format and Scoring Instructions :

1. The PFS in its current form is composed of 22 numerically scaled, “0”, to “10” items that measure four dimensions of subjective fatigue : behavioural / severity (6 items ; #2-7) ; affective meaning (5 items # 8-12) ; sensory (5 items : # 13-17) and cognitive / mood (6 items : # 18-23). These 22 items are used to calculate the four sub scale / dimensional scores and the total fatigue scores.
2. Five additional items (#1 and # 24-27) are not used to calculate subscale or total fatigue scores but are recommended to be kept on the scale as these items furnish rich, qualitative data. Item #1, in particular gives a categorical way in which to assess the duration of the respondent’s fatigue.
3. To score the PFS, add the items contained on each specific subscale together and divide by the number of items on that subscale. This will give you a subscale score that remains on the same “0” to “10” numeric scale. Should yu have missing item data, and the respondent has answered at least 75% to 80% of the remaining items on that particular subscale, calculate the subscale mean score based on the number of items answered, and substitute that mean value for the missing item score (mean item substitution).
4. Recalculate the subscale score. To calculate the total fatigue score, add the 22 item scores together and divide by 22 in order to keep the score on the same numeric “0” to “10” scale.

## Severity Codes :

| | |
|---|---|
| 0 | NONE |
| 1-3 | MILD |
| 4-6 | MODERATE |
| 7-10 | SEVERE |

## APPENDIX H

## CRITERIAL RATING SCALE FOR VALIDATING THE TOOL

Respected Madam / Sir,

Instructions :

Kindly review the items in the tool. If you are agree with the criteria, please place a tick mark in "RELEVANT" column otherwise place the tick mark in "NEED MODIFICATION' column or "NOT RELEVANT" and give your comments in the remarks column.

| SL. NO. | ITEM | RELEVANT | NEED MODIFICATION | NOT RELEVANT | REMARKS |
|---|---|---|---|---|---|
| | Demographic Variables | | | | |
| 1 | Age | | | | |
| 2 | Sex | | | | |
| 3 | Education | | | | |
| 4 | Occupation | | | | |
| 5 | Monthly Income | | | | |
| 6 | Duration of Illness | | | | |
| 7 | Duration of Dialysis | | | | |
| 8 | Any associated Illness | | | | |
| II | Piper Fatigue Scale | | | | |
| III | Methodology | | | | |

# *APPENDIX I*

## *HOT WATER FOOT BATH*

## Introduction

Hot foot baths increase blood flow through the feet and entire skin surface, relieving congestion in internal organs and brain. This type of bath also elevates the body temperature, relaxing tense muscles and increasing white blood cell activity.

## Definition

A hot foot bath is the immersion of both feet and ankles in hot water for 10–30 minutes at temperatures ranging from 100° to 115° F (43°C- 46°C ).

## Indications and Counter Indications

Foot bath treatment can help with the following health problems:

- Cold feet
- Colds, chest congestion, flu, coughs, pelvic inflammatory disease
- Headache
- Pelvic cramps
- Hemorrhoids and prostate problems
- Pain anywhere in the body

  from toothache to backache

## Contra Indications

- Buerger's disease
- Insulin-dependent diabetes
- Arteriosclerosis
- Any condition where circulation in the feet and legs is poor, such as severe vascular disease of the feet and legs, or a loss of sensation in the feet or legs

## Procedure

### Equipment

- Five-gallon foot tub or container
- Thermometer to test that the water is between 100° and 115° F (43°C- 46°C )
- Sheet and blanket
- Heavy towel and washcloth for cold compress
- Material for protection of the bed, if needed
- Pitcher or dipper to add hot water
- Pitcher of ice water

## Important Considerations

- Do not use hot foot bath on patients with diabetes or peripheral vascular disease unless the temperature is low; maximum 103°F (39°C) Not recommended for frostbite except where the temperature is not above 103° F (39°C)
- Be careful to not burn the patient when adding hot water
- Use cold compress to head when oral temperature exceeds 100° F (38°C), or when patient begins sweating

## **Treatment** Procedure

1. Preparation of Treatment

- ❖ This treatment may be given with the patient sitting on the chair or lying on a flat surface.
- ❖ Have a room warm free of cold drafts and all equipment assembled.
- ❖ Explain the procedure to the client and assist the client for the treatment.
- ❖ This treatment will be described with the client sitting on a chair.
- ❖ Prepare the foot bat with enough warm water to cover the ankles.

2. Treatment

- ❖ Test the water with your elbow to determine the comfort level put your hands under the clients feet carefully immersion them in warm water bath for 20 mts.
- ❖ Completely rap the patient and the foot tub in the sheet and blanket, leave the head and neck exposed.
- ❖ Drink water freely throughout the treatment to replace the water lost in sweating.
- ❖ Periodically add hot water to the foot bath to maintain heat. Place your hand between the hot water being poured and the clients feet (to avoid burning the feet).

3. Completion of Treatment

- ❖ Lift the feet out of the hot water and point the toes upward.

- Remove the tub and place the feet on the dry towel. Thoroughly dry the feet and toes.
- If sweating occurs, briskly rub the skin or then dry the skin with towel.
- Remove damp garments and replace them with clean, dry clothing.
- The patient must rest for approximately one hour after each treatment.
- If further sweating occurs during rest, take bath to finish the treatment.

APPENDIX J

# PHOTOS